THE

Malayan Agricultural Journal.

APRIL, 1935.

EDITORIAL.

Malayan Agricultural Industries.

The importance of Malaya's major industry is self-evident, but there is a danger that in emphasizing the extent and value of the rubber industry the impression may be given that this country is a one-crop country and that in this respect it differs greatly from other tropical colonies and neighbouring countries. In point of fact, however, it is not true that the well-being of Malaya depends entirely upon her major crop, and a closer examination of the present position shews that this country is not inferior to most other countries in the diversity of crops.

From an acreage point of view we have in Malaya about 3,300,000 acres of rubber, but we also have 820,000 acres of food crops, 640,000 acres of coconuts, 60,000 acres of oil palms, 130,000 acres of fruits, 60,000 acres of spices, and over 40,000 acres of other crops—a total acreage of crops other than rubber exceeding 1,750,000 acres.

That the agricultural trade of Malaya, even excluding rubber, is of great value to the country is evident from the statements presented in an article on this subject which will be found in this number. The agricultural trade, it is shewn, is of a three-fold character: there is an import of agricultural produce to feed the population engaged in the rubber and tin industries, there is a local production for local demand and for export, and there is the local entrepôt trade centred in Singapore and Penang.

It is not claimed that Malaya has yet achieved that broadening of the basis of agriculture about which so much has been heard in recent years; but progress has been made, and the value to the country of these industries has increased.

Further emphasis on agricultural development is provided in other pages of this issue. In particular, attention is directed to the recent publication of this Department on the Oil Palm in Malaya which is likely to prove a standard work on the plantation oil palm industry for some time to come. Reference is invited to the review published elsewhere in this number, written by one who previously was closely in touch with this industry in Malaya and was a joint author of a book on this subject. The present publication gives a detailed account of the system under which the crop is grown and manufactured. The very high quality of oil which is obtained under plantation conditions reflects credit on those in various spheres of activity whose combined endeavours have

resulted in this success. We may expect largely increased crops from Malayan estates in the next few years, as many new areas have not come into bearing and other areas are not yet in full bearing.

Another subsidiary crop which is attracting increased attention is derris, known locally as tuba root. The value of this root as an insecticide is steadily becoming more widely realised. In the past, the value of the root has been very much taken for granted. Recent research in many countries has enabled the manufacturers of insecticides to make a more intelligent use of this product, resulting in greater efficiency in its application and a wider demand.

We have seen statements that derris is largely a product of the jungle. This is quite untrue of the product of Malaya, and we believe in fact, that practically the entire world supply is obtained from the cultivated plant. Moreover, increasing discrimination is made regarding the planting of varieties which are now known to be more efficacious as an insecticide, and exporters of the root now have considerable knowledge of the toxic value of the consignments they purchase for export.

An important advance in our knowledge of the insecticidal value of tuba has been made by the publication of a special bulletin of this Department, which is also reviewed in this number, on the toxic value of derris species.

Attention is also directed to the pineapple canning industry. In the last number of this Journal we included an account of the present methods used in the cultivation of this crop and in the canning of pineapples. An article in the present number gives an account of the trade in canned fruits in the United Kingdom, and shews the relative position of Malayan pineapples in competition with other canned fruits. We shall return to this subject in future numbers to point to the improvements which are possible by adapting the most recent advances of the science of canning to the local pineapple industry.

An article on the manufacture of coconut-shell charcoal which is also included in this number will serve to answer the many enquiries which have been received on this subject. The success of a crop often depends on the elimination of waste and the full utilization of by-products. Shell-charcoal has special properties which are not much in demand at the present time. On the other hand, local demand for charcoal can often be met from the coconut estate and the fact that the value of the average annual imports of charcoal exceeds $700,000 points to the possibility of the extended use of the locally-prepared product.

Original Articles.

MALAYAN AGRICULTURAL TRADE IN 1934

BY

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The volume and value of the agriculture trade of Malaya are apt to be overshadowed by the rubber industry, which accounts for a large proportion of the exports, and to be masked by the quantity and value of the large imports of rice. There are, however, other tropical agricultural products which contribute in no small degree to the agricultural wealth of Malaya.

The agricultural trade of Malaya is of four descriptions. In the first place, it is concerned with the preparation for market and export of agricultural products grown within its borders. The principal crops in this category are rubber, coconut products, pineapples, palm oil and kernels, tapioca, sago and arecanuts. Secondly, there is the trade, centred mainly in Singapore and Penang, which is concerned with the importation of agricultural products for consumption in Malaya. The chief crops of this description are rice, coffee, tea, groundnuts and oil, sugar, tobacco, livestock for food, meat, dairy produce, poultry and eggs. Thirdly, there is the trade, also centred largely in Singapore and Penang, which is concerned with the import of the agricultural produce to surrounding countries, its re-conditioning, blending and grading prior to distribution throughout the markets of the world. The most important crops included in this category are rubber, arecanuts, tapioca and sago, copra and various spices, condiments and essential oils. Lastly, there is the cultivation and marketing of Malayan crops within her own borders. Such crops include rice, coconut products, vegetables, fruit and poultry, and a large number of minor products. A computation of the value of this industry is impossible at present, as apart from rice production, statistics are not available of the extent of production. The value of the locally-produced rice in the last season 1933-34 was about $16,000,000. Further, it is estimated that the consumption in Malaya of coconut products which are locally-produced, amounts to the equivalent of 100 nuts per head per annum, the value of which would be about $4,000,000. Incomplete as are these figures, they demonstrate that local production for local consumption is in the aggregate a considerable source of wealth to the country.

The extent of the trade in products largely grown in Malaya for export may be judged from the net export figures of these products. The net exports of rubber, coconut products, pineapples, oil palm products, tapioca, sago and arecanuts in 1934 amounted to 735,000 tons valued at over $230,000,000, of which rubber accounted for about 466,000 tons, valued $208,000,000. The

figures for the previous year were 667,000 tons valued at over $124,000,000, including 405,000 tons of rubber valued at over $101,000,000. Thus, in 1934, the net exports of rubber exceeded those of the previous year by about 61,000 tons and the difference in value of the exports in the two years was nearly $107,000,000, while the net exports in 1934 of the other agricultural products mentioned above were 269,000 tons valued at $22,000,000, as compared with 262,000 tons, valued at $23,000,000, in the previous year. It must be remembered that these figures relate only to the trade in the principal local crops. They demonstrate that production of such crops was higher than formerly in an unsuccessful endeavour to meet lower prices by an increase in production; the value of the greater crop of 1934, however, was less than in the previous year. Crops other than rubber therefore experienced a difficult year. The net exports of coconut products were 7,000 tons less in 1934 that in 1933—due in some measure to the replacements of copra by an increase in the production of coconut oil from 17,500 tons in 1933 to 25,500 tons in 1934. The value of net coconut product exports declined by $3,000,000. Canned pineapple exports attained the new record of 66,633 tons, the value of which was nearly one million dollars greater than those of the previous year. The palm oil market experienced a most difficult year of low prices. Oil palm products, the net exports of which were 3,200 tons of kernels and 15,850 tons of oil, were valued at $1,533,000 being but a few thousands greater than in 1933, although exports increased from 14,000 to 19,000 tons. Tapioca net exports fell from 26,380 tons in 1933 to 19,689 tons in 1934, a decrease of over 6,500 tons. Sago net exports increased by 3,000 tons from 5,467 tons in 1933 to 8,382 tons in 1934, and arecanuts by nearly 7,000 tons, 20,742 tons in 1933 as compared with 27,336 tons in 1934.

Consideration may now be given to the chief crops for consumption in Malaya—rice, coffee, tea, groundnuts and their oil, sugar, tobacco, livestock for food, meat, dairy produce, poultry and eggs. There are numerous other products of this description, but their effect on the position is not great. The outstanding fact in this connexion is that the quantity and value of the net imports of all these products—with the exception of meat—shewed a marked increase over the previous year. The total value of such imports was $70,000,000 as compared with $62,000,000. Had it not been for the fact that the price of rice was materially lower in the year under review than in 1933, the increase in the total value would have been much higher, for, whereas in 1933 Malayan net imports of rice were 433,000 tons valued at over $24,000,000, in 1934 the imports were 20,000 tons greater for almost exactly the same cost. For the poorer people of Malaya, therefore, conditions in 1934 were much improved. The improvement in the rubber industry caused by the introduction of rubber regulation, in addition to the more satisfactory position of the tin industry, resulted in more work being available with an upward tendency in wages and an increase of imported labourers. These factors, together with

the low price of rice resulted in a greater purchasing capacity and therefore greater consumption of imported agricultural products. In view of the fact that some of these important factors did not apply in the first half of the year, and that the position in the edible oil industry has improved very recently, it is almost certain that net imports of all these products will shew a very considerable increase in 1935 over 1934.

There is, at the time of writing, little sign of any material advance in the cost of imported rice; in fact, in the main countries from which Malaya draws its supplies there are ample stocks of rice, and the prospects of the 1935 crop shew no abnormal features. Settled labour conditions should therefore continue in this country and the cost of living for the labouring classes should not be different from that of 1934.

The entrepôt trade of Singapore and Penang is also concerned with the re-conditioning, blending, grading and subsequent export of a number of crops, the most important of which are rubber, arecanuts, tapioca and sago, copra, various spices, condiments and essential oils. It will be noticed that certain of these crops have already been discussed under the category of Malayan produce; this is due merely to the fact that in such cases there is not only a large local production but an important trade in blending or grading for export, in which in some cases the Malayan product is upgraded by admixture of the better quality from other countries, while in other cases the converse applies.

To appreciate the extent of this trade it is necessary to examine gross imports and exports rather than net exports. The following figures illuminate the situation.

Table I.

Gross Imports and Exports of Certain Agricultural Products, 1934.

Product	Imports		Exports	
	Quantity Tons	Value $	Quantity Tons	Value $
Rubber ...	211,443	71,769,566	677,208	279,639,826
Arecanuts ...	38,563	2,975,138	65,899	5,473,078
Tapioca ...	7,136	554,151	26,825	2,406,735
Sago ...	48,860	1,436,471	57,242	2,390,238
Pepper ...	26,634	14,896,915	19,985	11,129,070

Table 2.
Annual Net Imports and Exports of Agricultural Products, Malaya.

Year	Net Imports*		Net Exports† (excluding rubber)		Excess of Imports over Exports (excluding rubber)		Net Exports of Rubber		Excess of Total Imports over Exports	Excess Value of Exports over Value of Imports
	Quantity Tons	Value $	Quantity Tons	Value $	Quantity Tons	Value $	Quantity Tons	Value $	Quantity Tons	Value $
1923	643,000	101,600,000	206,600	43,100,000	436,400	58,500,000	181,700	227,200,000	254,700	168,700,000
1924	694,600	118,400,000	219,000	51,600,000	475,600	66,800,000	152,500	189,900,000	323,100	123,100,000
1925	744,800	133,100,000	218,700	48,600,000	526,100	84,500,000	161,800	519,000,000	364,300	434,500,000
1926	857,300	157,400,000	225,800	50,000,000	631,500	107,400,000	243,400	547,500,000	388,100	440,100,000
1927	956,000	167,400,000	207,500	42,700,000	748,500	124,700,000	190,700	351,400,000	557,800	226,700,000
1928	921,400	158,900,000	230,700	44,900,000	690,700	114,000,000	260,100	262,900,000	430,600	148,900,000
1929	1,004,500	171,700,000	254,700	44,000,000	749,800	127,700,000	418,000	353,700,000	331,800	226,000,000
1930	1,022,300	150,800,000	244,100	37,800,000	778,200	113,000,000	421,000	199,600,000	357,200	86,600,000
1931	883,200	92,100,000	241,200	26,700,000	642,000	65,400,000	393,600	99,300,000	248,400	33,900,000
1932	737,800	74,200,000	253,500	29,000,000	484,300	45,200,000	386,000	68,100,000	98,300	22,900,000
1933	770,000	66,700,000	265,700	25,600,000	504,300	41,100,000	405,300	101,400,000	99,000	60,300,000
1934	937,000	78,700,000	272,800	23,400,000	664,200	55,300,000	465,800	207,900,000	198,400	152,600,000

* Imports include coir cordage and fibre, mats and matting, padi and rice, coffee, tea, kapok, mace and nutmegs, pepper, ginger, groundnuts and groundnut oil, sugar, tobacco, vegetables, livestock for food, meat, leather goods, milk, butter, poultry and eggs, feeding stuffs for animals, ataps, cloves, castor oil, gingelly seed, fruits, and tapioca refuse.

† Exports include rubber seed, coconut products, copra, palm oil and kernels, canned pineapples, arecanuts, sago, tapioca, derris root, hides and skins, gambier, patchouli leaves and oil, mace and nutmegs.

The imports of rubber include 132,000 tons of wet rubber—sheet, scrap, lump and bark—which is treated in Singapore factories and exported as dry rubber. Sago imports include 7,000 tons of raw sago, which is manufactured to pearl and flour sago. The pepper position is somewhat curious. Imports exceed exports in spite of the fact that very large quantities are exported. The explanation would appear to be (*a*) Malaya consumes considerable quantities of pepper; (*b*) pepper is frequently decorticated in Singapore before re-export. The balance of this trade in 1934 is not typical of recent years. The large net imports indicate that Singapore stocks were increased, probably to be released early in 1935 when prices were extremely favourable. Malaya produces cloves, nutmegs and mace. The total imports of these products were 2,249 tons valued at $556,082 and exports 1,664 tons valued at $675,899. The imports therefore were greater than exports although the value of exports exceeded that of the imports. This difference is due to the fact that these products are imported, dried, graded and re-exported. In this procedure there is a loss of weight, although the value of the resultant product more than compensates for this.

An attempt has been made to assess the volume and value of Malayan agricultural trade in 1934 and to compare this trade with that of previous years. For this purpose, the quantity and value of net imports of all products have been added and compared with the sum of all products of which there is a net export. From this data a balance is struck of the volume and value of the Malayan agricultural trade in the country. For the year under review net imports amounted to 937,000 tons valued at $78,700,000 (including rice 453,000 tons valued at $24,000,000). Net exports (excluding rubber) were 273,000 tons valued at $23,400,000. Malayan agricultural trade, therefore, of crops other than rubber and rice still shews an excess of imports over exports of 211,000 tons, valued at $31,300,000, accountable mainly to imports of livestock, dairy produce and tobacco.

It must be remembered, however, that these imports are in a measure to feed the large population which, both directly and indirectly, is connected with the rubber industry. Including all imports and all exports of agricultural products a truer balance of the Malayan agricultural trade is obtained. This balance shews that Malayan imports of agricultural products exceeded her exports by 198,000 tons, but that the value of agricultural exports exceeded imports by $152,600,000. As shewn in Table 2 this balance is the most favourable since 1929. Another encouraging feature is the improvement in net exports of produce other than rubber. The 1934 total of 272,800 tons is the greatest yet recorded, and with the improvement of general trade conditions which appears possible, a considerable increase in the value of such exports would appear to be a reasonable anticipation for the year 1935.

THE TRADE IN CANNED FRUITS IN THE UNITED KINGDOM*

BY

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The trade in canned fruits in the United Kingdom comprises (*a*) fruits, grown and canned in the country and (*b*) fruits canned in other countries and imported. To this must be added a small but increasing trade in fruit salad made from imported and home grown fruit in cans which are opened, mixed, recanned and reprocessed in England.

The output of canned fruit in England for the year 1932 was estimated by the Ministry of Agriculture to be approximately 689,000 cwts. Figures for 1933 are not available but it appears that it is unlikely that they would show much increase over the 1932 figures.

In Scotland there is apparently a production of between 10,000 and 20,000 cwts. For the same year exports of canned and bottled fruits amounted to 9,792 cwts., so that in round figures it would appear that the consumption of home-grown canned fruits in the United Kingdom amounts to approximately 700,000 cwts.

The imports into the United Kingdom of canned and bottled fruits have greatly increased in the past ten years. In 1924 imports were 2,100,000 cwts., in 1932 they had increased to 3,203,000 cwts., falling in the following year to 3,018,000 cwts. The present consumption of canned and bottled fruits in the United Kingdom therefore amounts to about 3,800,000 cwts. per annum.

The chief varieties of fruits canned in Great Britain are those which are not, as a rule, imported in large quantities. Peaches, pears, apricots and pineapples account for five-sixths of the imports and most of the balance is made up of canned fruit salad, the chief constituents of which are also peaches, pears, apricots and pineapples.

British canned fruits comprise strawberries, raspberries, currants, blackberries, gooseberries, plums, greengages, cherries and apples.

With the exception of apples these are known as soft fruits; the imported kinds are known as hard fruits.

The British canning industry has developed during the last ten years; in 1923 the production was very small and was confined to four factories, while at present there are seventy-four factories operating in England and the output has increased tenfold in the last seven or eight years.

The industry has been fostered and assisted by the Ministry of Agriculture, and the Canning Research Station at Campden has materially helped development.

* The statistical data are taken from the Report on canned and dried fruit supplies in 1933 prepared by The Imperial Economic Committee.

It is obvious that a great increase in the consumption of canned and bottled fruits in the United Kingdom has occurred and that the development of the British canning industry has not so far led to any curtailment in the consumption of imported fruits.

The opinion has been expressed that, owing to the difference in their nature, there is no real competition between British and imported canned fruits, the demand for imported hard fruit being independent of the demand for soft British fruits. The opposite view has also been expressed by those engaged in the British canned fruit trade, who consider that the education of the public taste to prefer British canned soft fruit to imported canned hard fruit is merely a question of the energy and money that is put into the campaign for popularising it.

It is difficult to express an opinion as to which view is correct, but there is no doubt that a large trade has been built up in British canned soft fruit of which the consumption is now about equal to that of Malayan canned pineapples; the trade itself is well organised and well run and large sums of money are being expended on advertising.

British and Imperial canned fruits now receive substantial protection under the Ottawa Agreements whereby canned fruits from non-British countries are charged 15 per cent. *ad valorem* in addition to the duty on the sugar content, while British and Imperial canned fruit pay no duty except on the sugar content. The protection afforded applies equally to British and to Imperial and Colonial produce and Malaya accordingly benefits thereby.

As already stated, the imports of canned fruits into Great Britain consist almost exclusively of peaches, pears, apricots and pineapples.

These on the mean for four years 1930 to 1933 inclusive, comprised:—

Pineapples	...	...	...	27.8 per cent.
Peaches	...	...	...	24.0 „ „
Pears	...	...	...	23.7 „ „
Apricots	...	...	...	7.7 „ „

Of the imports of canned pineapples Malaya accounts for by far the largest amount.

The following three tables show the imports of canned fruits from various countries for the past six years, in thousands of hundredweights.

It will be seen that on the whole there is a steady tendency towards increased consumption. There was on appreciable drop in imports in 1933 which was almost entirely accounted for by the decrease in imports of Malayan canned pineapples.

The following remarks on the import trade in canned pineapple are abstracted from the Report on Canned and Dried Fruit Supplies in 1933, prepared by the Intelligence Branch of the Imperial Economic Committee.

"In 1931, canned pineapple comprised 26.2 per cent. of the total imports of canned fruit preserved in syrup compared with averages of 28.8 per

Imports of Canned Pineapples into the United Kingdom.
(in thousands of hundredweights)

Exporting Countries	1928	1929	1930	1931	1932	1933
Malaya ...	515	648	608	676	891	711
Union of South Africa ...	12	13	4	5	4	4
Other Empire Countries ...	1	—	2	3	17	19
United States ...	48	58	40	35	32	22
Hawaii ...	49	44	38	47	19	25
Other Foreign Countries ...	5	3	6	3	2	12
Total Empire Countries ...	528	661	614	684	912	734
Total Foreign Countries ...	102	105	84	85	54	59
Grand Total ...	630	766	698	769	966	793

Imports of Canned Fruits other than Pineapples into the United Kingdom.
(in thousands of hundredweights)

	1928	1929	1930	1931	1932	1933
Total Empire Countries ...	212	182	278	237	310	417
Total Foreign Countries ...	1,767	1,772	1,454	1,940	1,927	1,808
Total ...	1,979	1,954	1,732	2,177	2,237	2,225

cent. and 27.3 per cent. for the periods 1921-5 and 1926-30 respectively. In 1930, in spite of increases in the quantities of other classes of fruit, the percentage of pineapple in the total rose to 30.2 per cent., but in 1933 the percentage receded to 26.3 per cent. or almost the same as in 1931".

"There have been no significant alterations in the countries of supply in recent years although the growing importance of Australia and the increasing imports from Japan, probably of Formosan origin, are worthy of note."

Total Imports of Canned Fruits into the United Kingdom.
(in thousands of hundredweights)

	1928	1929	1930	1931	1932	1933
Empire Countries ...	740	843	892	921	1,222	1,151
Foreign Countries ...	1,869	1,877	1,538	2,025	1,981	1,867
Grand Total ...	2,609	2,720	2,430	2,946	3,203	3,018

"Empire Countries continued to take a large and growing share of the trade and in 1932 accounted for over 94 per cent. of the trade of which all but 2 per cent. came from British Malaya. In 1933 there was a setback from this very high percentage to 92 per cent., British Malaya alone supplying 90 per cent."

"The supply of imports from South Africa has recently declined to small proportions while a similar decline occurred in supplies from Hawaii, between 1928 and 1933 the share of Hawaii in the trade having declined from 15½ per cent. to less than 6 per cent. In both cases the downward tendency may have been the result of a temporary fall in the demand for a relatively high priced article due to the depression, though the improvement which has taken place in the quality of the Malayan article is probably an important contributory factor."

"For some years only negligible quantities of canned pineapple were received from Australia, but there was a revival in 1932 when some 10,500 cwts. were imported and the total was further increased to 15,900 cwts. in 1933.

"Small consignments have also been received from Fiji (1,200 cwts. in 1933) and from Mauritius (1,300 cwts. in 1933). Imports from Japan were very small until 1932 when 8,900 cwts. were registered".

The Malayan canned pineapple maintains its place on the market largely because of the very low prices at which it is sold. At the time of writing 1 lb. tins of Golden Yellow cubes in slices are being retailed in shops at 4½d each while the lower grades can be obtained at 3½d. In competition with this, Australian canned pineapple is retailing at 11d. to 1s 1d. for a 2 lb. tin and Japanese from 5d. per lb. tin. Imported peaches and pears retail at from 8d. to 1s. per lb. tin, while home grown soft fruit retails at slightly higher prices. The cheapest canned fruit, other than pineapple, is probably British cherries retailing at 5d. per lb. tin, but these very cheap lines represent low quality produce which it is not considered desirable to encourage.

The following table shows the wholesale prices for various kinds of imported canned fruit from 1929 to the end of 1934. These data have been collected and supplied through the courtesy of Mr. W. C. Knox of the Imperial Economic Committee. The prices are wholesale merchants' prices duty paid in England and accordingly represent the rates at which the various lines are selling. The most interesting point is the manner in which the low prices for Malayan pineapples are being challenged by competitors at more or less similar rates for Australian peaches and pears. Definite information concerning wholesale prices for Australian pineapple is not at present available but it is understood that this fruit occupies a position intermediate between Golden Malayan and Hawaiian standards *i.e.* with the wholesale price of the former ranging between 7s. and 8s. per dozen 2½ lb. tins (duty paid landed) and the latter from 10s. to 11s. the Australian product would be in the region of 9s.

Malayan pineapples come on the market in two grades *viz*:—Golden and G.A.Q. and in cubes, or in slices. The best qualities of Malayan pineapple are uniformly Golden Yellow in colour and have a marked flavour; they differ from Hawaiian and Australian pineapples in that the latter are of a pale lemon or honey colour and have somewhat less marked flavour, although this is considered by the trade to be an advantage; they are, moreover, less fibrous than the Malayan product.

At present there seems little to distinguish the best Australian brands of canned pineapple from the Hawaiian article, although in the trade it is considered to be somewhat inferior and is regarded as flat and sweet.

The difference between the Malayan fruit and that from other countries is due to the variety.

Among the cheaper grades of Malayan produce there is still much of poor quality comprising unripe fruit of inferior flavour and unattractive appearance. In all other countries in which canned fruit is produced, increasingly strict attention is paid to the quality of the produce packed, and, while it is admitted that a marked improvement has taken place in the quality of the Malayan product, the standard is still below what is required in other and competing industries and must react against the Malayan product in the various markets.

A striking feature of the present position is the rapid advance which Australian canned fruit of various kinds has made in the English market. As the statistics which have been given show, imports thereof have increased very greatly of late. The quality of the produce is uniformly high and the prices at which it is being retailed are attractively low. In this respect the favourable character of the Australian exchange rate has no doubt had an effect. The Australian Government is assisting development by excellent displays of canned fruit at various trade shows.

Wholesale Prices of Canned Fruits.

(per doz. 2½ lb. cans - except Malayan cubes).

Period		Apricots		Peaches		Pears		Pineapples			
		Californian 2½'s	Australian 2½'s	Californian 2½'s	Australian 2½'s	Californian 2½'s	Australian 2½'s	Hawaii Fancy 2½'s	S. Africa Fancy 2½'s	Malayan Golden 2½'s	Malayan Cubes 1½'s
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
September	1929	10. 9	10. 6	10. 3	10. 6	12. 6	12. 3	12. 6	12. 6	9. 6	—
September	1930	10. 9	9. 6	9. 9	10. 0	12. 6	10. 6	14. 0	—	8. 6	—
Av. Year	1931	8. 5	8. 2	8. 0	7. 8	9. 6	9. 2	11. 7	11. 6	7. 9	—
Av. Year	1932	9. 9	9.10½	9. 1½	9. 4½	10. 7½	10. 4½	12. 6	11. 9	7. 8	4. 4
1st Quarter	1933	9. 6	9.10½	9. 3	9. 6	10. 6	10. 4½	13. 6	11. 9	7. 6	4. 0
2nd „	„	9. 6	8. 9	9. 4	8. 3	10. 6	9. 3	13. 6	11. 6.	7. 6	3.11
3rd „	„	9. 6	8. 9	9. 0	8. 3	10. 2	9. 3	12.10	11. 6	7. 5	3.10½
4th „	„	9. 2	8. 9	8. 7	8. 3	9. 4	9. 3	12. 6	11. 6	7. 4	3.10½
1st Quarter	1934	8. 1	8. 3	8. 0	8. 3	8. 6	9. 3	11.10	1. 6	7. 4	3.10
2nd „	„	8. 4	7.11	8. 0	7. 3	8. 6	8. 0	11. 6	11. 3	7. 1	3. 9½
3rd „	„	8. 9	7. 9	8. 3	7. 3	9. 0	8. 0	11. 8	—	7. 6	3.10
4th „	„	10. 0	7. 9	8. 6	7. 3	9. 6	—	12. 0	—	7. 3	3. 9

It is anticipated that an increase in the production of canned fruits in South Africa is not unlikely to occur in the course of the next few years. As the trade in all canned fruits is to an extent interdependent these factors are likely to affect the market for Malayan canned pineapples.

There has been a marked tendency for prices for all kinds of canned fruits to fall during the past few years. This is partly due to general trade depression and partly to increased competition as a result of the greatly increased production. With the stimulus of cheap prices the British market has expanded to take the increased volume of domestic production and of imports, but producers everywhere complain that the prices which they are able to obtain are barely sufficient to prove remunerative. In these circumstances Malayan pineapples are regarded in many quarters as having a directly "bearing" effect on the whole market for canned fruit by reason of the low prices at which they are currently sold.

There is apparently little doubt that a rise in the market price for Malayan canned pineapples would be welcomed by the producing side of the British industry, in the belief that it would be reflected in an upward trend in the prices of all other varieties of canned fruit. On the other hand, this view is not shared by distributors who fear that it would spoil the market. The position has directed attention to the conditions under which Malayan canned pineapples are produced. Much information on this score has filtered through during the past few years and little of it to the credit of the industry.

Moreover the situation is by many considered to be adversely affected by the selling methods which prevail in relation to Malayan canned pineapples and which cause destructive competition. Attention has been repeatedly drawn to this point but as yet the system has not been sensibly modified.

Both in Britain and elsewhere increasing care and attention are being paid to methods of production of canned fruit; considerable efforts are being made by organised selling arrangements and by judicious advertising to improve the market. In consequence, British and Dominion producers cannot be expected to view with favour competition from an industry which they regard as working under conditions markedly inferior to those in the United Kingdom and with selling arrangements which are regarded in many quarters as tending to keep prices down.

As against this it has been claimed that the existing system of distribution of Malayan pineapples combined with the low price of the product causes it to reach sources of consumption which other classes of canned fruit have so far been unable to approach.

There is reason to believe that in spite of the great increase in the consumption of canned fruit in the United Kingdom, the market has by no means reached saturation point, and during the current year the imports of Malayan canned pineapples have already considerably exceeded the imports in the corresponding period of 1933, and have all been absorbed without difficulty.

There are, moreover, considerable potential markets for canned pineapples outside Great Britain, notably in Canada, where the trade is expanding rapidly; the displays made by the Malayan Information Agency at the Canadian National Exhibitions have naturally assisted in this.

A strong case exists for further efforts to popularise the product by judicious display and advertising.

The situation is therefore favourable inasmuch as the Malayan industry possesses established markets and the demand for canned fruit is still increasing. It is unfavourable because of (*a*) the increasing competition from other forms of canned fruit (*b*) the absence of standardised grading for and the unreliability of the Malayan produce and (*c*) the fact that the knowledge that the Malayan industry is conducted on lines which cannot compare with those maintained in competing industries elsewhere, is now widespread.

One of the results of the period of depression has been a drastic overhauling of the canning industries in the important producing countries, and it seems evident that they will emerge from these difficult times on a more keenly competitive basis than ever before. Hawaiian and Malayan pineapples are sufficiently dissimilar to preserve even yet the distinction between the markets for the two products, but in planning for the future it would certainly seem inadvisable to count on this distinction as a permanent feature; with Australia, South Africa and Formosa also in the field and moreover on a much more nearly competitive basis, the need for reorganisation becomes even more pressing. This is quite apart from the competitive influence of other fruits which seems likely to grow stronger if and as the tastes of the consuming public change.

Dealing as it does with an article of domestic consumption the product is in a different position from raw materials. Recent legislation provides the means for bringing about some improvement, but further remodelling of the industry is needed, so as to bring its methods into line with accepted practice elsewhere.

A difficulty lies in the comparative unawareness of those concerned with the industry of the methods employed elsewhere. In order to provide some information on this point, in a subsequent number of this journal a summary of information concerning the British canning industry will be given.

CHARCOAL MANUFACTURE FROM COCONUT SHELL

BY

F. C. Cooke,

Officer-in-Charge, Copra Investigations.

When coconut shell is heated in a closed space without the presence of air, decomposition ensues, resulting in the formation of charcoal and in the evolution of large quantities of volatile products which can be recovered only by using an efficient retort and condensing plant. If charcoal alone is required but no volatile by-products, it is sufficient to carbonise the shells in a stack or pit.

Methods of Manufacture.

The shells used require a certain amount of selecting, as pieces with husk adhering yield a tarry or dirty product. Thin shells should be discarded and only shells from fully matured nuts, and those that have a clean bald surface selected.

The normal method of charcoal manufacture practised in Malaya is the age-old method of burning in turf or mud-sealed heaps. The enclosed heap is fired and when the shells are thoroughly burning, the supply of air is cut off, carbonisation proceeding without further combustion. This primitive method is capable of producing good charcoal.

A tall stake is driven into the ground and shells are built round it to a height of about 4 feet. The pile is then covered with earth and grass which is damped. The stake is removed and fire inserted after which the heap is sealed and allowed to burn for 12 hours. In the morning the pile is doused with water and allowed to cool off.

On certain estates, the process is simplified still further by merely throwing water on a large, burning, uncovered heap of shells. This results in a charcoal which is not uniform, and which is of an inferior quality.

In Ceylon, where in coconut districts it is possible to excavate without reaching water, pits from 4 to 6 feet deep are filled to the top with shells which are then covered with green fronds and damp turf, sealed with earth and the shells fired.

There are two alternative methods of procedure. In one fire of shells is started at the bottom of the pit, more shells are added until the pit is full and when these are well alight the fire is sprinkled with water until the flames have died down. The glowing mass is then covered with damp fronds, turf and earth, and left for 12 hours. Alternatively, a large pit 6 feet deep and 8 feet in diameter is dug; a hollow bamboo pipe is placed vertically in the centre and the pit is filled to ground level with shells. Paraffin is poured down the pipe and lit, after which water is sprinkled over the burning shells. They

are then completely smothered with wet fronds, sacking and earth and left overnight.

Requirements and Specification.

The distillation of creosote and other by-products from the shells must be practically complete as, for use in cooking, the object is to obtain a smokeless fuel. For chemical purposes, the charcoal will not act as an absorbant if the pores of the charcoal are clogged. In the production of producer gas for use in suction gas engines, the object is to obtain maximum gas output and to keep the fouling of the scrubbers and filters to a minimum.

A London firm of importers gave the following specification :—

(*a*) Not more than 15 per cent. volatiles.

(*b*) Not more than 10 per cent. moisture.

(*c*) Pieces to be of a size, not less than 10 per cent. remaining in a mesh with 1 inch holes; nor more than 5 per cent. passing through a mesh with $\frac{1}{4}$ inch holes.

Requirement (*c*) is severe for there may be considerable damage and breakdown during shipment.

Properties of Coconut Charcoal.

An actual sample of Malayan charcoal received which contained 25 per cent. moisture, gave 5,730 calories as the calorific value. This in terms of dry charcoal, is equivalent to a gross calorific value of 7,640 calories.

Pieces of charcoal of good quality are uniformly dark, and free from adherent dirt due to husk. When dropped on a stone floor such pieces emit a clear bell-like ring and the broken edges shew a black lustrous surface with a sharp conchoidal fracture. A badly burnt piece will emit a dull sound, and its broken surface is dull, dirty and irregular. An overburnt piece is very thin and has a smooth wavy indented edge beginning to curl. Thin overburnt pieces are very brittle, and are therefore unsuitable for inclusion for export as they are quickly reduced to dust.

Great care, experience and skill are required if the necessary high quality is to be obtained and slight misjudgment may result in a mixed mass of woody half-burnt charcoal, as a result of incomplete combustion, or a low yield of thin brittle copra through over-ventilation or over-burning. It will be appreciated, therefore, that the training of the operators may be a lengthy process and many batches of charcoal may be spoiled before the necessary skill and judgment are acquired.

Yields.

The theoretical yield of shell charcoal is half the weight of the coconut shell. In practice, 25 per cent., or even considerably less, is obtained according to the efficiency of production and the thickness of the original shell.

An approximate formula for estimating the number of shells required per picul of charcoal (133 1/3 lbs.) is four times the number of nuts required per picul of copra *e.g.*

250 nuts per picul of copra = 1,000 shells per picul of charcoal.

If shells are also to be used as fuel in the copra kiln, it would not be safe to assume that more than 30 per cent. of the total shells would be available or suitable for conversion into charcoal.

Cost of Production.

In one instance, charcoal is now being manufactured and bagged on contract at the rate of 28 Straits cents per picul. Three bags are required per two piculs of charcoal and this together with handling and road transport brings the total cost to about 60 cents per picul f.o.b.

The Conference tariff on coconut charcoal is about 72s. per long ton ex ocean port, less 10 per cent. deferred rebate. Cost of production, above, is equal to about 25s. per ton. Selling charge, insurance etc. bring the total c.i.f. cost to about £5 per ton.

In view of the possible local extras not included above, an all-in cost of £6 per ton should be allowed.

The Market.

In 1931, the price offered by European buyers was between £10 and £11 per ton, but a more recent quotation was as low as £7 per ton delivered. Demand has hitherto been neither large nor sustained. In Ceylon, there is a considerable industry, the charcoal produced being either sold in the villages for kitchen use; for use in laundries; for conversion into producer gas; or for consumption in smelting works in Colombo. In Malaya, the bulk of the charcoal used for cooking purposes is obtained from *bakau* wood and the local demand is somewhat limited.

THE ASSOCIATION OF THE PYRALID MOTH, *TIRATHABA LEUCOTEPHRAS* MEYR., WITH THE FRUIT BUNCHES OF THE NIPAH PALM, *(NIPA FRUTICANS)*

BY

G. H. CORBETT,

Government Entomologist.

Several fruit bunches of the nipah palm were received in May, 1934 by the Entomological Division of the Department of Agriculture requesting information as to the agent responsible for the presence of a gelatinous exudation and asking for recommendations to prevent its formation, since a considerable mortality of female inflorescences was considered to occur.

The examination of these fruit bunches showed that two were bored by caterpillars but since the others contained no caterpillars and showed no signs that caterpillars had been present the writer visited the area to make further observations. During this visit, the writer observed that most female heads of the palms, more especially underneath, showed varying quantities of exudation with which insects were not always associated and remarked that dead and immature heads were not numerous and that very few heads failed to reach maturity. After some discussion with the Manager, it was finally arranged to conduct an investigation to ascertain (*a*) whether this Pyralid moth was primary (*b*) whether it could be controlled by an insecticide (lead arsenate) and (*c*) if so, whether it prevented the development of the female head to such a degree as to warrant the cost of spraying.

In order to obtain information on the above points, one hundred and twenty female inflorescences, which were artificially pollinated on the 23rd June, 1934, were selected. Block I of twenty inflorescences was the control and Blocks II, III, IV, V and VI, each of twenty inflorescences, were sprayed with lead arsenate on June 25th, Blocks III, IV, V and VI on July 2nd, Blocks IV, V and VI on July 9th, Blocks V and VI on July 16th and Block VI on July 23rd.

Between June 23rd and November 1st observations on these inflorescences were recorded on fourteen occasions and at the time of the last inspection they were specially examined to ascertain when they would be ready for the "gonchang"*.

The record shows that out of a total of one hundred and twenty, eighty-three spathes were ready for the "gonchang" before or by November 1st, 1934, twenty-five would be ready about December 1st, 1934, ten were considered immature and two inflorescences were recorded dead. Of the eighty-three, seventy-five fruit bunches were without or with slight exudation and eight showed considerable exudation, one of which also revealed the presence of a

* "Gonchang" = binding and beating to accelerate juice exudation.

Record of Observations.

1. Number of spathes ready for the gonchang		2.	3.	4.	5.	6.
Before or by November 1st.	about December 1st.	Number of immature spathes	Number of fruit bunches without or or with little exudation	Number of fruit bunches with considerable exudation and loose seeds	Of those in column 4, number with indications of the presence of caterpillars	Number of dead female heads
			Block I. Control.			
9		—	6	3	0	0
	6	—	3	3	0	0
		5	3	2	2	0
			Block II. (Sprayed once)			
12	—	—	11	1	0	1 Cause of death unknown not insect
	5	—	5	—	0	
		2	1	1	0	
			Block III. (Sprayed twice)			
14	—	—	12	2	1	
	4	—	3	1	0	
		2	1	1	1	
			Block IV. (Sprayed thrice)			
15	—	—	13	2	0	
	5	—	4	1	0	
			Block V. (Sprayed four times)			
18	—	—	18	—	—	1 dead with caterpillar
		1	1			
			Black VI. (Sprayed five times)			
15			15	—	1	
	5			5	—	

caterpillar; of the twenty-five, fifteen were without or with slight exudation, ten, one of which with indications of the presence of a caterpillar, had considerable exudation, of the ten, six were without or with slight exudation, four with considerable exudation and of this number three showed indications of the presence of caterpillars. Of the one hundred and twenty inflorescences, only six, one of which was recorded dead, showed the presence of a caterpillar. On these records this moth is not considered to be of economic importance to the nipah palm inflorescence.

Some association, however, between considerable exudation and caterpillars seems to exist and it is suggested that caterpillars when present are responsible for stimulating the exudation. On the other hand, eighteen fruit bunches showing considerable exudation were without signs of the presence of caterpillars which indicates that the caterpillar is not primarily responsible for its formation.

In addition to this Pyralid caterpillar, the weevil, *Diocalandra frumenti,* is more frequently, but not always, associated with the exudation from the female heads and possibly when present promotes an increased flow of juice. It should be mentioned, however, that by far the majority of female heads at their bases, if carefully examined, show slight exudation with which neither the Pyralid caterpillar nor *Diocalandra frumenti* is always associated and for which another agent is undoubtedly responsible. Small undeveloped fruits are found at the base of the inflorescence, and since all their flowers may not have been pollinated or the plant may have been unable to mature all its fruits, it is suggested that the exudation may be produced as a result of the plant endeavouring to discard the unpollinated fruits or, if pollinated, to obtain maximum growth of other fruits.

On this nipah area the male flowers adjacent to the female inflorescence are removed by a knife for the control of the Anthomyiid fly, *Phaonia corbetti* Mall., and it was thought that, in the process of removing the male flowers, the young female stalks and inflorescences may be injured. It was therefore decided to ascertain if more exudation was formed by deliberately cutting the female inflorescence and its stalk at the time when the male flowers were removed. For this purpose twenty female inflorescences were slightly cut. These inflorescences were artificially pollinated on July 16th, 1934, and inspected nine times, the last occurring on December 7th, 1934. During the course of these inspections, four inflorescences were observed with considerable exudation and loose immature fruits at their bases. On the last inspection, sixteen spathes were considered ready for the "gonchang", three for the "gonchang" about January 7th, 1935 and one was recorded dead, cause—"not insect". *Diocalandra frumenti* was associated with the exudation on some inflorescences but the caterpillar was not observed. As a result of this experiment slight cutting of the female inflorescence at the time of the removal of the male flowers would not appear to increase the exudation nor to prevent the maturation of the female heads.

Summary.

(1) The caterpillar is only present in a comparatively few female inflorescences and, when present, rarely, if at any time, prevents the maturation of the fruit bunches.

(2) The moth appears to be secondary and is probably attracted to the exudation from the female inflorescences.

(3) The weevil, *Diocalandra frumenti*, although more prevalent than the caterpillar, is undoubtedly secondary. This insect was not present on all the nipah inflorescences showing exudation, and observations on its behaviour towards other palms demonstrate that it is attracted to fermenting sap.

(4) No information as to the value of spraying with an insecticide was obtained owing to the fact that very few inflorescences in the control block contained caterpillars.

(5) The exudation may be due to the plants endeavouring to discard undeveloped fruits or to allow of maximum development of the other fruits in a bunch. On the other hand, the exudation may be due to a mechanical agent, such as wind which at times undoubtedly causes considerable swaying of the inflorescence.

(6) It would be interesting to ascertain if after the "gonchang" the quantity of nipah juice produced from those spathes, the inflorescences of which showed considerable exudation, is less than from the inflorescences showing slight or no exudation.

Miscellaneous.

THE GOVERNMENT RICE MILL AT TEMERLOH, PAHANG

BY

H. J. Simpson,

State Agricultural Officer, Pahang.

History.

The policy of the Government is to encourage padi cultivation in order to render Malaya less dependent on imported rice. This policy has been vigorously pursued in the State of Pahang and has resulted in a larger area under this crop and increased yields. In certain parts of the State, production has exceeded consumption, and at the same time transport difficulties have rendered the surplus padi unsalable at remunerative prices. It was decided that the only practicable solution of this problem was the establishment of local rice mills of a suitable capacity to deal with the surplus crop in the immediate vicinity of each mill, since the rice so made could then be transported more economically than the unhusked padi.

The objects were to secure to growers a better price for their padi and to ensure a more even distribution of the locally-produced rice supply throughout the State, any surplus being available for export to other parts of the Peninsula.

Temerloh was selected for the site of the first mill as it is accessible by river, road and railway, is the centre of a large Malay agricultural community, and is a District headquarters.

Erection of Buildings and Mill.

Levelling of building sites commenced in September 1934 and all buildings were completed in November of that year. The work of erecting the mill itself commenced in the latter month and the first trial run was made on 21st December, 1934. This trial run shewed that numerous additions and alterations to the plant were necessary. These were completed at the end of February 1935. Minor improvements, such as padi chutes and bins, have still to be completed.

The engineers for the erection of the mill were Messrs. Guthrie & Co. Ltd. The buildings were erected by the Public Works Department.

Description of Mill and Buildings.

The mill, constructed by W. McKinnon & Co. Ltd., is of the self-contained type, with a capacity of 7 cwt. (or about 6 piculs), of white rice per hour, from about 10 piculs of padi. The oversize measurements of the mill are 16 feet

6 inches by 20 feet 6 inches. It is driven by an 18/21 h.p. Petter crude oil engine.

The machinery is installed in a building, 30 feet by 40 feet, constructed of galvanised sheet iron, with a steel frame-work, a roof of Abbester-cement roofing material and a concrete floor.

Annexes are provided in the mill building for the engine and for a small store for fuel. The padi store, which is bird and rat proof, is constructed of similar material to the mill building; the dimensions are 50 feet by 25 feet by 12 feet.

Other buildings consist of a garage and lorry-driver's quarters, latrine, and bath house. A padi-drying floor of cement, 70 feet by 30 feet, is provided on the hill above the padi store.

Operation of the Mill.

The padi is fed onto a riddle which separates any stalks, stones and other impurities. From this it passes into the first elevator—which is of the bucket type—which discharges it by gravity into a feeding tank, through a box containing magnets which remove any fragments of metal, and finally into the shelling cone where the husk is removed.

The shelling cone consists essentially of two discs covered with a special grinding compound; the upper disc is stationary, but the lower one revolves at a high speed. The padi passes between the two discs and after hulling, is discharged at the edges. The hulled rice, known as brown rice, still mixed with the husk and bran, is discharged into the second elevator which carries it to the second riddle where the broken rice with a small proportion of the husk-bran is separated and is known as cargo bran. The remainder passes to the winnower where all the husk is drawn off by a powerful suction fan.

The brown rice which may still contain some unshelled padi, but now free of the husk-bran, is led to the padi separator, which is worked to and fro by an eccentric drive from the main shaft. This machine separates the unshelled padi from the brown rice, the former passing back to the first elevator and thence through the shelling cone, the latter to the third elevator and then by gravity to the polishing cone where, by passing between a revolving emery disc and a stationary wire cloth, the outer layer of the brown rice is removed. The fine bran is drawn off by a suction fan, the coarser bran being swept out by revolving arms.

The polished rice passes into the fourth elevator and to the rice grader, over a second winnower, and is finally discharged through pipes to the bagging board in three grades; *viz.* No. 1 white rice, No. 2 large broken, and No. 3 small broken.

The entire process is automatic and continuous from the feeding of the padi onto the first riddle to the bagging of the final products.

Management and Working of the Mill.

The mill is controlled by a committee consisting of the District Officer, Temerloh, as Chairman, the State Agricultural Officer, Pahang, the Malay Agricultural Assistant, Pahang South, and the Manager of the Rice Mill as Secretary. The mill is being run on a strictly commercial basis.

The permanent staff of the mill consists of a manager, miller, padi chooser, engine driver, cleaner (who is being trained as an assistant miller) and four or five daily padi labourers. The entire staff are Malays with the exception of the miller who is Chinese.

The padi is purchased at selected centres throughout the District at prevailing rates—at present $1.80 per picul. It is transported to the mill in lorries hired by the Committee. The rice is sold ex-mill.

Capital Costs.

Final figures of capital costs are not yet available, as roads are at present incomplete and other minor works are necessary. The following figures, however, shew that the total capital is about $20,000.

McKinnon's self-contained rice mill; second-hand 18/21 h.p. Petter crude oil engine. Delivery to site and erection ...	$ 8,613
Milling and engine room: padi store with erection	6,242
Drying floor, garage and driver's quarters, latrine, bath house	2,769
Estimated costs:	
Road, levelling of building sites and clearing	1,000
Additions and alterations to plant and contingencies ...	1,000
Silos for bulk storage	500
	$20,124

Opening Ceremony.

The opening ceremony was performed by His Highness the Sultan of Pahang on 28th February 1935, in the presence of a large gathering of officials and unofficials including the Hon'ble the British Resident of Pahang, the Hon'ble the Adviser on Agriculture and all the Pahang State Heads of Departments.

At the conclusion of the opening speech by His Highness, the Chief Kathi offered up the customary prayers and His Highness then unlocked and entered the mill building. His Highness poured the first gantang of padi into the feeding hopper and the machine was set in motion.

Following the opening ceremony, there was an official tiffin at the Temerloh Club, at which speeches were delivered by the Hon'ble the British Resident and the Hon'ble the Adviser on Agriculture, and a reply thereto by the District Officer on behalf of the Mill Committee.

KEDAH PADI SHOW.

An innovation in shows was held at Alor Star, Kedah, on 13th and 14th March, 1935, when a successful padi show took place, the exhibits consisting entirely of selected high-yielding strains of padi which had been grown by planters from seed distributed by the local Department of Agriculture.

The large weekly-fair building, which was kindly lent for the occasion, was used to stage the exhibits which were placed on benches on two tiers throughout the large building and arranged in sections corresponding to the twelve Circles, or Divisions, into which the padi areas of North and Central Kedah are divided.

The Show was officially opened by His Highness the Sultan of Kedah in the presence of a distinguished company which included His Highness the Regent of Kedah, the Hon'ble the British Adviser, Kedah, and the Hon'ble the Adviser on Agriculture, Malay States.

The Principal Agricultural Officer, Kedah, (Mr. W. N. Sands) delivered an address of welcome to His Highness, which was translated into Malay by the Assistant Principal Agricultural Officer (His Highness Tunku Yacob bin Sultan Abdul Hamid). He said, *inter alia,*

"Kedah possesses a soil and climate as well as an agricultural population unequalled in Malaya for the production of large crops of first-class padi, and at the present time, the State produces about 42 per cent. of the total Malayan annual output of it. This high percentage can, it is confidently believed, be maintained and possibly increased, not only by bringing under cultivation and draining areas of suitable land, but by increasing the yields of areas already cultivated; and the best means of accomplishing this, apart from manuring, is the planting of selected high-yielding strains of padi, such as are exhibited here today. These selected strains are the result of careful scientific breeding work extending over several years. The majority of these strains have been bred at Telok Chengai Station from popular local varieties, whilst the remainder consist of some of the best forms which have been selected in Malacca and in Krian, Perak. It is estimated that these selected varieties of padi will yield under similar conditions at least 20 per cent. more grain than unselected varieties.

"The records of the performance of all these padi exhibited are shewn on the labels attached to the exhibits, which performance has been officially checked in the field and certified. It will be noted that, in most cases, the yields obtained have been high. These high yields have stimulated extensive distribution of seed by growers themselves.

"The total number of exhibits is rather smaller than was at one time anticipated owing to the extensive flood damage which occurred during the season in certain areas; still, the large collection now displayed is a

good indication of the widespread attention local padi planters are giving to the matter of growing selected varieties of padi".

Each exhibit consisted of one gantang of padi contained in a bamboo basket of suitable shape and size. This arrangement proved most suitable and convenient for displaying the samples, the total number of which was 654. In addition, there was a large Departmental Stand, on which were shewn padi and ears of thirty-two selected pure lines grown at Telok Chengai. Charts shewing the average monthly rainfall over a period of 20 years, as well as the crops of padi of the last 11 years compared with the acreage planted, were exhibited. A series of photographs of manurial and other experiments on Kedah experimental stations was included.

The exhibits were judged by the State Agricultural Officer, Perak, (Mr. F. Birkenshaw), Che Ismail, and Towkay Kung Cheng Oon, Assistant Manager of the Ban Heng Bee Rice Mill, on the day before the Show opened; and on the morning of the second day of the Show, H.H. The Regent presented the silver cups to the winners.

Of the padi shewn, the highest number of exhibits was of Siam 29 with 185 exhibits, followed by Nachin 10 with 91, and the local Radin China with 68, whilst Siam 76 and Radin China 12 had 46 each, and Mayang Ebus 85 had 45.

The silver cup presented by H.H. the Sultan for the best exhibit of padi was won by Aisha binti Mohd. Noh, Circle A, Mukim Telok Chengai, with variety Siam 29; the second prize, a silver cup, presented by the late Raja Muda, going to Haji Saaid bin Haji Ahmad, Circle B, Mukim Pumpong with variety Mayang Ebus 88; the third silver cup, presented by the Hon'ble Mr. J. D. Hall, British Adviser, was won by Mat Isa bin Saad, Circle C, Mukim Anak Bukit with variety Siam 76.

Two silver cups were presented by Messrs Cheng Lye Hock and Cheng Lye Hin of the Ban Heng Bee Rice Mill and Mr. Chong Ah Leng of the Simpang Empat Rice Mill for the best exhibits of local selection of varieties Reyong and Mayang Ebus. The cups were won by Mohamed bin Yasin, Circle D, Mukim Tajar for Reyong 6, and by Ja'afar bin Shariff, Circle A, Mukim Pengkalan Kundor for Mayang Ebus 88, respectively.

In addition, a silver medal and diploma were awarded for the winning exhibit in each Circle. Cash prizes were also given for the three best exhibits of each of the thirteen selected varieties of padi in each section. The total amount of these awards was $464.

A very large number of visitors attended the Show and keen interest was displayed.

The Rural Lecture Caravan visited the Show and displayed its collection of agricultural exhibits and in the evening screened educational films concerning agriculture and co-operation in Malaya.

The opinion is confidently expressed that the aims and objects of the show have been fully realised and that there will be a large extension of planting of improved strains of padi next season to the benefit of the planters and the State.

AGRICULTURAL SHOW. ALOR GAJAH MALACCA.

The first Agricultural Show to be held in the District of Alor Gajah took place on 23rd March 1935. In 1934 a show was held which was confined to exhibits of padi.

The agricultural classes were well supported, except in the poultry section, in which entries were few and the quality generally poor. In all other classes competition was keen and some very good quality exhibits were to be seen. Entries in the padi competition were numerous and shewed a great improvement over last year in general purity and quality.

An exhibit of padi, poultry and manila hemp was put up by the Department of Agriculture and attracted considerable interest throughout the day.

A new type of smoke cabinet for small-holders' rubber, erected by the Rubber Research Institute of Malaya, was also a centre of interest, so much so that the rubber sheet being smoked could not be dried by the end of the day owing to the door being constantly opened by visitors.

RELIEF TO THE COCONUT AND OIL PALM INDUSTRIES, 1935.

In order to afford a measure of relief to the coconut and oil palm industries, the Federated Malay States Government made certain concessions in 1934. It has been decided to grant the same concessions in 1935 as were granted in 1934. The concessions are as follows:—

Coconut Industry.

In the case of lands exceeding 10 acres in area:

(*a*) the rent on planted areas already enjoying the rebate for land cultivated with coconuts under the Land Rules and paying $2 an acre will be reduced to $1 per acre;

(*b*) unplanted areas will also pay $1 per acre only.

In the case of lands not exceeding 10 acres in area, the effect of the concession will be to reduce the rent, which is in the majority of cases less than $2 per acre, by half.

Oil Palm Industry.

A rebate will be given of 50 per cent. of the rent payable with a minimum of $1 per acre on planted and unplanted areas.

Applications for this concession should be made to the Collector of Land Revenue of the district in which the land is situated. The question of the eligibility of applicants for the concession is a matter for the discretion of the State authorities.

In cases where rent has already been paid for the current year, any excess of payment as a result of the grant of the waiver will be carried forward as a credit to 1936.

In the event of rent not being paid by the 31st December, 1935, the arrears will be carried forward at the full rate.

IMPERIAL FRUIT SHOW.

The Imperial Fruit Show was held at Leicester from 2nd to 10th November, 1934. The Malaya stand, organised by the Malayan Information Agency occupied a site next to the main entrance and attracted much attention. Exhibits were devoted to the various brands and grades of canned pineapples produced in Malaya. Cookery demonstrations were given at frequent intervals shewing the different ways of using canned pineapple.

INTERNATIONAL GROCERS' EXHIBITION.

The exhibition was held in September 1934 at the Royal Agricultural Hall, Islington. The main display on the stand organised by the Malayan Information Agency was canned pineapples, but tapioca, pepper, nutmegs, coconut-flour, coconut oil, palm oil and tea were also included.

This exhibition is very important inasmuch as it is attended by all the leading men in the canned goods trade from every part of the United Kingdom. The Malayan display serves a good purpose in keeping Malayan canned pineapple before the eyes of the trade.

Selected Article.

TEA PRODUCTION, CONSUMPTION, AND PROSPECTS.*

The Position under the Restriction Scheme.

The present is the centenary year of the tea industry of the British Empire, and this occurs at a time when the tea-growers are again resorting to artificial means of restricting outputs in order to improve an adverse statistical situation. Exports of tea from the principal countries of production in the East have been controlled since April 1, 1933, following an agreement between the British and the Dutch growers on a scheme for restricting outputs at the source, with the object of bringing supply more in accordance with demand and with a view to reducing the excessive stocks in existence. After over one and a half years of restriction by the regulation of exports, however, the position still remains unsatisfactory to the producer.

The standard maximum production to be allowed in any one year to each of the principal countries of production was fixed for the present period of the regulation scheme—that is, to the year 1938—as follows:—

	lb.
India	382,594,779
Ceylon	251,522,617
Dutch East Indies	173,597,000
Total ...	807,714,396

These figures are based on the highest export returns from each country for the years 1929-31, and no allowance was made for immature areas or extensions to the existing acreage, which are taken into account when allotting the internal percentage of production of each estate or group of estates. In order to keep production within the quota it has therefore been necessary for growers drastically to curtail outputs, and the estate restricted percentage has been from 25 to 35 per cent. of the potential maximum.

A Prohibition Clause.

A vital clause in the restriction agreement is the prohibition of fresh plantings or extensions to present areas, which is important, for in previous years production was increasing from an annual expansion in the acreage coming into bearing.

For the first year of control, 1933-4, the exportable maximum was fixed at 85 per cent. of the basic standard, allowing for the export of 682,000,000 lb. and being equal to a reduction in shipments of approximately 125,000,000 lb.

Total exports from all three sources, however, only amounted to 651,000,000 lb., being accounted for as follows:—

* By "Our Mincing Lane Correspondent" in *The Manchester Guardian Commerical*, 30th November, 1934.

	Exportable quantity	Actually exported.	Difference.
		(in millions of pounds)	
India (by sea) ...	320.6	*317.8	— 2.8
Ceylon ...	213.8	197.0	—16.8
Dutch East Indies ...	147.6	136.1	—11.5
Total ...	682.0	650.9	—31.1

* Provisional

The reason for the difference between actual exports and the permissible quantity was mainly due to export rights not being fully used, and as these can be carried over to the next year they must be allowed for in taking into account available supplies to come forward. Production in countries outside the restriction agreement showed an expansion last year, but not on a scale to be regarded as serious at present, amounting to 142,600,000 lb., as compared with 134,000,000 lb. for 1932-3.

Consumption for the year to March 31, 1934, according to deliveries from bond in the United Kingdom and from imports into other countries, showed an increase on the previous year about equal to the expansion shown in production in unrestricted countries—that is, 8,000,000 lb.,—and exceeded gross exports for the year by about 67,000,000 lb. Incidentally, it may be remarked, the largest individual increase was about 20,000,000 lb. taken by Russia. This net increase of 59,000,000 lb. represents the reduction in visible world stocks, but does not include, of course, any possible reduction in invisible stocks held by blenders, distributors, &c.

While last year showed an increase on the previous year, however, consumption during the past two years in virtually all tea-drinking countries has shown a decrease on the preceding period, but, owing to the method adopted for arriving at the relative figures, real consumption is difficult to determine. In the United Kingdom this is arrived at from the deliveries from bond, but for several years withdrawals were excessive in anticipation of tea duty being reimposed after being removed in April, 1929. The reduced purchasing power of consumers during recent years from economic causes and exchange restrictions, together with lack of credit facilities, has played a considerable part in the declining consuming demand.

Unexpected Market Trend.

When the International Tea Committee met to fix the quota for the second year, a release of approximately 20,000,000 lb., being 2½ per cent., and making the quota 87½ per cent. of the exportable maximum, was allowed, but the market has since gone contrary to expectations, and on the eve of the announcement

of the quota for the third year of control, commencing April 1 next, the statistical position in terms of visible supplies, and also the trend of prices at the auctions, both compare adversely with the same period of last year.

To the release of 20,000,000 lb. referred to above must be added the difference between the exportable quantity and that actually exported last year —that is, 31,100,000 lb. This gives a total exportable quantity for the current restriction year of 733,100,000 lb. For the first seven months of this period, April 1 to October 31, the actual exports exceeded those of the corresponding period of last year by 29,135,673 lb., the comparative figures being as follows:

From		1933	1934	Difference.
N. India	...	171,205,346	181,314,282	+10,108,936
Ceylon	...	122,335,159	140,450,701	+18,115,542
Java	...	62,751,946	63,663,141	+ 911,195
Total	...	356,292,451	385,428,124	+29,135,673

Furthermore, notwithstanding the fact that stocks were drawn upon during the year ending March, 1934, as indicated above, stocks in the bonded warehouses on October 31 last, according to the Board of Trade returns, were higher, amounting to 279,581,000 lb., as compared with 263,642,113 lb. a year ago, and 264,000,000 lb. in 1932.

It will now be seen why prices are depressed at the sales. Stocks in London at the bonded warehouses at the end of each month are generally accepted as the barometer of the trade, and movements each month are closely watched for an indication of the trend of consuming demand, which can be estimated in relation to import returns and in conjunction with deliveries for home consumption, taken together with the re-export figures. The main reason that restriction would appear to have so far failed to improve the statistical position as reflected in the adverse stock returns, and so bring about the rise in price to the level desired, is due to the fact that heavy stocks constituting invisible supplies have evidently been held by blenders and distributors considerably in excess of earlier estimates, and this is confirmed to a large extent by the returns of deliveries for the last three years during the period from January 1 to October 31, which are as follows:—

1934	...	...	...	(lb.)	360,371,912
1933	...	...	...	,,	382,116,227
1932	...	...	...	,,	400,074,735

There is no apparent reason for doubting that real consumption in the United Kingdom has been well maintained, the only difference, though an important one to a section of growers, being a change of popular taste in favour of cheaper teas and blends, which is reflected in the quality price trend at the

sales. It is normal for stocks to increase at the latter part and the beginning of each year owing to heavy shipments from Northern India, where crops are seasonal and the season ends about November, opening again in June.

Tea crops in all the other principal producing countries continue throughout the year, seasonal changes being shown in quality and outputs in accordance with climatic conditions in the various districts. The North India crop for the season to the end of October is 294,869,360 lb., as compared with 287,267,760 lb. to the end of October last year and 320,584,960 lb. for the same period of 1932.

Normally the size of the Northern India crop was quickly reflected in the statistical position and was an important factor influencing the course of prices at the sales, but with restriction this factor no longer operates, as with export licences negotiable and transferable crop returns are more or less stabilised in ultimate exports.

The Traffic in Licences.

A questionable feature of the restriction ordinances and a factor leading to the narrow price margin ruling between teas of different elevation and growth is the traffic allowed in export licences, which, being negotiable, have passed from the ownership of low-grown tea growers and native holders to the hands of fine-quality tea producers, with the result that shipments of cheaper grades have been relatively less than medium and fine invoices. From the point of view of growers the result to date of the export regulation scheme has been to benefit producers of lower grades, and in consequence the low-grown and poorer quality teas show the largest advance in price when compared with medium growths, while fine-quality teas are selling below the level ruling before restriction came into force.

Stocks at the end of the year look like being equal to over nine months' supply, or about 50 per cent. in excess of what is considered ample for normal requirements, so an improving situation can only be brought about in the immediate future by a further reduction in exports from producing countries, assisted by an expansion in consumption. Efforts are being made to increase consumption and to revive demand for better quality teas by means of an extensive propaganda campaign organised through the co-operation of the tea-growers' associations. An export credit scheme for facilitating shipments to Russia by means of a finance company is also receiving the consideration of members of the various tea-growers' associations, the object being to finance shipments in excess of the present restricted demand by Russia to the extent of 40,000,000 lb. per annum, being equal to 5 per cent. of the standard maximum crop outturn during the term of the restriction agreement.

At the sales factors influencing the trend of prices will be the quota of production allowed for 1935 and also the progress made by propaganda, and there is reason to expect an expansion in consuming demand with a return of more normal times at home and in other markets. A strong feeling is growing

that the abolition of the preferential duty on Empire tea would be to the benefit of the British grower, as since this was imposed competition has resulted for outside markets previously held by Ceylon and Indian teas, and accounts to some extent for the increase in shipments to the United Kingdom from these two sources.

This Year's Price Decline.

Prices at tea sales in Mincing Lane were quickly stimulated by the advent of the restriction scheme, and, whereas in January, 1933, the average price for all teas was under 7¾d. per pound, in December last year it was nearly 1s. 2½d. During 1934 the market has reversed the trend of the previous year, and from over 1s. 3d. in January the weekly sale average has declined by nearly 3d.

The average sale prices for teas of all grades and growths from the various sources of production for the week ending November 22 and the comparative averages to date for the year are—

	Week ending Nov. 22 1934.	Corresponding week, Nov. 23 1933.	Total to date Jan. 1 1934.	Total to date Jan. 1 1933.
	s. d.	s. d.	s. d.	s. d.
N. India ...	11.96	1 0.83	1 1.55	11.12
S. India ...	11.45	1 1.28	1 1.03	10.45
Ceylon ...	1 1.73	1 3.28	1 2	1 1.40
Java ...	10.30	11.05	11.24	7.88
Sumatra ...	9.21	10.08	10.31	6.95
Nyasaland ...	10.83	10.87	1 0.52	8.54
Average ...	1 0.09	1 2.26	1 1.37	11.56

In connection with the above comparative averages for the year to date it should be mentioned that prices at the sales last year only began to reflect to any extent the influence of restriction during the second half of the year, as prior to that period a low level was ruling. In regard to prospects, a sharp recovery in the weekly average will be necessary from now on to correspond favourably with the upward tendency which began about this time last year and continued each week to the end of January, when the decline to the present level set in.

The adverse situation for the grower is more clearly illustrated in the comparative averages for the Northern Indian teas, which for the present season to date is 1s. 0.78d., as against 1s. 2.89d. for the corresponding period last season.

The International Tea Committee has met to decide on the quota for the third year of control, commencing April 1 next, and, in view of the situation revealed above, its decision, due at the end of the month, is awaited with interest.

Reviews.

The Oil Palm in Malaya.

B. Bunting, C. D. V. Georgi and J. N. Milsum. Malayan Planting Manual No. 1 Published by the Department of Agriculture, Straits Settlements and Federated Malay States, 1934, pp. 293 including Index, 36 illustrations, two graphs and four plans. Price $2 post free.

This Manual on one of the important major agricultural industries in Malaya will be welcomed not only by all planters concerned with the cultivation of oil palms but also by those who have a financial interest in oil palm estates and by agricultural and other technical officers who are required to give advice in relation to the various aspects of cultivation of the oil palm and preparation of the products for the market. No authoritative publication on this crop has appeared subsequent to the bulletin published by the Department of Agriculture in 1927, since which date not only have considerable advances in our knowledge been made, but also a large extension of the area under cultivation in Sumatra (Netherlands Indies) and Malaya.

The Manual is divided conveniently into twenty-two chapters each dealing with a particular aspect of the cultivation of the palm, diseases and pests, harvesting of the crop and preparation of the two principal products—palm oil and palm kernels.

In addition, chapters on packing, shipping and marketing, uses of oil palm products, production costs and returns contain much information of value to present and prospective planters of this crop.

A useful appendix includes "Conditions for alienation of Land in the Federated Malay States and the State of Johore", in which States practically the whole of the present areas under this crop have been planted in Malaya.

The inclusion of an index also adds to the usefulness of the Manual.

The information given, as far as our present knowledge is concerned, is sufficiently detailed to enable any intelligent planter to carry out all the essential operations on an estate, from the selection and planting of seed, to the erection of a factory and the preparation and shipment of the final products.

The chapters on Manuring and Seed Selection indicate that further experimental work is required in relation to these important problems. In other respects however, very considerable knowledge has been acquired since the introduction of the oil palm as a plantation crop in Malaya and authoritative recommendations can be made in relation to many estate practices.

About half the Manual is devoted to estate factory procedure and the preparation of oil palm products, but this does not indicate any lack of balance

in treatment, since this aspect of oil palm estate practice is of considerable importance when the fruit which is harvested has to undergo subsequent treatment on the estate for the preparation of two marketable products.

A valuable section in this part of the Manual is a comparison of the two principal methods of expression of palm oil employed on plantations in the East *viz.* the centrifugal and press systems.

It is of interest to record that the authors still consider that the centrifugal process of extraction, first recommended by the Department of Agriculture, possesses certain advantages over the press system.

The illustrations are excellent and supplement very clearly the narrative. The graphs and diagrams of factory lay-out are also very useful.

The Manual should prove of considerable value not only to planters, estate agencies and directors of oil palm estates in Malaya but also to those interested in the cultivation of this product in other countries.

The writer of this review, although no longer connected with the oil palm industry in Malaya, has had the good fortune to be able to keep in touch with recent progress in Malaya and with the scientific work which is being carried out in Malaya and elsewhere and is therefore able to appreciate the very valuable work which has been carried out by the officers of the Department of Agriculture who are the authors of this publication and by other officers mentioned by the Director of the Department in his preface to the Manual.

The Manual may be considered to be an up-to-date compendium of our present knowledge of an important tropical agricultural crop which has become a cultivated or plantation crop practically within the last two decades, which is only a brief period in the life history of the palm.

B. J. E.

The Toxic Value of *Derris* Spp.

N. C. E. Miller. Special Bulletin, Scientific Series No. 16. Department of Agriculture, Straits Settlements and Federated Malay States. 44 pp. 1 plate. Price 50 cents (Straits Currency).

The nature of the toxic value of derris (tuba root) and its degree of toxicity are subjects which are still shrouded in uncertainty. The present knowledge of the subject has resulted in a different standard of valuation being adopted in the United States of America to that accepted in the United Kingdom. In the former country, valuation is based on the rotenone content, whereas in the latter country total toxic content is made the standard for valuation. The author has sought to elucidate this subject by means of carefully controlled tests on certain insects, rats and fish.

He points out that although accounts of many experiments may be found in the literature of economic entomology, in many cases the results are unreliable because they are based on one or two tests in the field, where it is difficult to estimate accurately the actual mortality due to the action of the insecticide, and quite impossible to compute how many insects were temporarily driven away, probably to return later. His own experiments, conducted under controlled conditions in the laboratory are not, therefore, open to the same criticism.

The experiments were carried out with two species of derris, *viz*: *Derris elliptica* Prain (from two sources) and *Derris Malaccensis* Prain var. *sarawakensis* Hend., using aqueous and alcoholic solution and dusts of each, and also the three constituents, rotenone, deguelin and toxicarol. The subjects of the experiments included a number of insects, of which the larvae of the Noctuid moth *Spodoptora pecten* Guen. a grass feeder, and Cassidinid beetle *Aspidomorpha miliaris* F. proved the most suitable from the point of view of their adaptability to laboratory conditions and their abundance. Experiments were also conducted on certain fish and on the common house rat (*Rattus rattus diardi* Jent.).

The conclusions of the author, adequately supported by the data produced, are of particular interest. He shews that with these insects, derris in any form has little value as a stomach poison, and the indications are that derris acts as a repellant to insects, the nervous system of which it also affects through the integument. He shews further that derris is toxic to insects without actual contact, indicating that it yields a volatile poisonous substance.

Rotenone, deguelin and toxicarol dissolved in acetone, are toxic to fish, but only moderately so to the insects used in the tests; while rotenone was ineffective as a stomach poison to the cockroach *Periplaneta americana* L. and to the rat, *Rattus rattus diardi* Jent. Aqueous solutions, ether extract, and dust of derris, incorporated in baits for *Periplaneta americana* L. had a repellant action.

In respect of the three kinds of derris used, as regards toxicity to the subjects used in the investigations, there is little to choose between them, and the rotenone content is not necessarily a reliable index to the toxic value.

Observations on the methods of preparing derris extract for use are made. There appeared to be no advantage in the use of hot water in the preparation of an aqueous solution and the loss of toxicity of such solution on standing is far less rapid than is generally thought to be the case. The preparation of a dust from derris, by the addition of barium hydroxide, or of milk of lime, which causes the solids to be precipitated, was used with success. The precipitate when dried and sieved is ready for use. The employment of milk of lime for this purpose was set forth in the first instance by Bagnell-Bull, who holds a British patent for this process.

D. H. G.

Departmental.

FROM THE DISTRICTS.

Compiled by the Chief Field Officer from Monthly Reports submitted by Field Officers.

March, 1935.

The Weather.

The weather during March was fairly normal throughout the Peninsula, being hot and dry during the first two or three weeks and showery in the latter part of the month. The rainfall was in general about, or slightly below,the average, but was notably deficient in Kelantan, along most parts of the western coast and in the central area included in southern Perak, northern Selangor and the Temerloh District of Pahang.

Remarks on Crops.

Rubber. Prices showed a considerable decline until a revision of the exportable percentage of the quotas was announced when they recovered steadily towards the end of the month.

Increases in the number of holdings not tapped were reported from several parts of Malaya. The main causes were padi harvest, wintering of the trees, exhaustion of export coupons or sale of coupons.

Mainly owing to the dry weather conditions, mouldy rot disease was not much in evidence, but reports of leaf mildew, *Oidium Heveae,* on large estates were received from all parts of the country, while its presence on small holdings in most areas was also recorded. On the whole, the attacks were mild and caused no serious damage.

A Malay in Kuala Kangsar District was found to be using a cabinet made of bamboo and sacking for smoking rubber sheet. From plans sent by the Asiatic Rubber Instructor to the Rubber Research Institute a similar cabinet was constructed with modifications to improve ventilation and decrease the risk of fire. This cabinet has been shown to make smoked sheet of good quality and can be constructed for a maximum cost of $6 for materials, some of which the owner of a small holding can often obtain for himself.

Padi. At the end of the month the padi harvest was nearing completion in all the more important padi areas such as Kedah, Province Wellesley, Krian, Negri Sembilan, Malacca and Kelantan. Elsewhere it had commenced and was progressing steadily except in the large new Panchang Bedina area in Selangor where the season has been arranged for a harvest in May. Crop prospects remain as stated for February. The Krian crop appears to be about the same in volume as that of the previous season, but the grain is light, probably owing to the effects of the drought in December. For the second year in succession there was a shortage of labour during the harvest in Krian, but this apparently did not give rise to any serious losses of crop.

Preparation of land and planting of nurseries for the coming season have been commenced in the inland Districts of Selangor, Jelebu and part of Kuala

Pilah District in Negri Sembilan, the river mukims in Kuala Lipis and Pekan Districts of Pahang and the northern portion of Johore.

Competition for the purchase of the Krian crop has remained keen and the growers have benefitted from the resulting improvement in price. Slightly better prices are reported from all parts of the country. Supplies of padi for the new Temerloh rice mill are only coming forward slowly as growers are apparently holding back in the hope of a further increase in price.

The first stages of the All-Malayan Padi Competition have commenced with the holding of local competitions. These include the State Competition in Kedah, District competitions for Alor Gajah in Malacca, Rembau and Tampin in Negri Sembilan and Pekan in Pahang as well as local competitions at Pontian and Segamat in Johore. The number of entries at these competitions has been quite satisfactory and the quality of the exhibits has shown a marked improvement in centres where a competition was held last year.

These competitions are doing much to advertise the merits of high-yielding pure strains of padi. In Kedah, only these strains were accepted for the competition, of which one of the main objects was to encourage the planting over wide areas of a few of the high-yielding strains best suited to the special conditions of each locality and so to provide large quantities of uniform grain for milling. In Krian, a stage has been reached where it is possible to recommend the cultivation for the main crop of one particular strain throughout the whole of the north-western area, while there is a choice of two good strains for the somewhat harder and shallower lands of the south-eastern portion of the District.

Large scale tests were carried out at the Bagan Serai mill with five of the best yielding strains, all of which gave a rice of good quality containing a satisfactorily low percentage of broken grain. These tests showed clearly the effect of uniformity of padi grain on the quality of the resultant rice.

Arrangements are being made in Krian to encourage the wide planting of the best strain for each set of conditions and to provide a large supply of seed in the coming season.

Millers both in Kedah and in Krian are supporting the cultivation of a single pure strain over a wide area and have expressed willingness to pay a bonus for large supplies of uniform grain that complies with certain conditions.

In Raub and Lipis Districts of Pahang the merits of as many as eight different pure strains have received recognition in different localities. In these Districts the yield under local conditions, and good cooking qualities, are the two characteristics of primary importance, since padi is mainly grown for home consumption. In the absence of milling facilities uniformity of grain is a minor consideration.

Coconuts and Copra. Prices for copra fluctuated considerably during the month and were, on the average, below those for February. The price has, however, remained high enough to maintain interest in copra production. Two or three new kilns have been erected by Malays in the Kuala Langat District

of Selangor. The kiln of approved type at Kuala Pahang produced copra of satisfactory quality for which regular sales at a premium of 10 cents above the current market price have been arranged. Two approved kilns have been erected in Tioman Island, off the Pahang coast; only one of these has so far been operated, owing mainly to transport difficulties during the monsoon season.

The seasonal shortage of nuts has continued in several parts of the country. This has led, except in a few areas, to prices for fresh nuts which are high in relation to the existing price of copra and has maintained the price for home-made coconut oil. The export of coconuts from Singapore to Hongkong is reported to have increased considerably.

In the Seremban and Rembau Districts of Negri Sembilan as also in the Kuala Tembeling area in Pahang, where supplies of nuts are insufficient to meet local requirements, some progress is being made in the replacement of old palms by young plants and in the planting of additional new areas.

Pineapples. The crop of fruit was ripening in Selangor during the month and was being sold either to the Klang pineapple factory or to Singapore where a shortage of supply resulted in prices higher than those obtainable in Selangor. In Johore fruit supplies were adequate to keep the factories in active operation.

Fruit. Light crops of durian, langsat and rambutan were obtained in Kuala Pilah District, but in most parts of the country these trees and the pulasan are flowering or just setting fruit. Good crops are anticipated in parts of Perak and in Malacca. Fruits in season were the chiku and also the mango in parts of Pahang and Johore. There continued to be large exports of bananas from Jelebu to various markets, while the same fruit was conveyed by lorries from Batu Pahat District to Singapore.

Tobacco. Prices for tobacco have remained at about the same high level as in February, the general range being $20 to $50 according to quality. In Central and Southern Perak, however, the range has been $30 to $80 owing to the shortage of supplies caused by unfavourable weather conditions earlier in the season and by the attacks of stem borers. These prices have maintained interest in the cultivation of the crop. In Kedah a further area of 37 acres is reported to have been planted and extensions of the planted area are recorded in Province Wellesley and in Upper Perak.

Agricultural Stations and Padi Test Plots.

At the Kuala Kangsar Agricultural Station a groundnut manurial experiment was harvested and the results were analysed. A significant increase in yield was obtained from the plots on which a green dressing, grass or legume was buried in fresh one week before planting.

A site of 7 acres for a new Station at Telok Datoh in Kuala Langat District was marked out. A contract was let for clearing *lallang* grass with which the land was covered, and the first digging was completed.

On the site of the new Raub Station, timber clearing was completed and good progress was made in construction of the system of drains.

Harvesting was completed on the Bukit Gantang Padi Test Plot in Perak. Average yields for the respective varieties in gantangs per acre were :—Seraup 450, Radin and Siam 330, Radin Siak 200.

Harvest was finished on the Pulau Gadong Station in Malacca. In some of the new fields to be used for mechanical cultivation experiments, work on removal of buried timber and on levelling was in progress.

On the new Jelebu Test Plot in Negri Sembilan land was prepared for planting and nurseries were sown.

Rural Lecture Caravan.

This Caravan visited eight centres in the Batang Padang District of Perak during the period February 24th to March 11th, stopping two days at each centre. The subjects of lectures and demonstrations were the preparation of good quality sheet rubber and the housing and feeding of poultry. Attendances were good at each centre and the total number of persons present was estimated to be 11,000.

The Caravan attended the Agricultural Show at Alor Star, Kedah, on March 13th and 14th and commenced a tour in Larut District on March 25th. Attendances up to the end of the month were reported to have been very satisfactory.

In connexion with this tour, an innovation is being tried in the form of a day tour with the exhibits only to out-lying places to which it is not possible to take the Caravan. The exhibits will be take to the chosen centres on bicycles. This tour will be undertaken in the second half of April during the period when bright moonlight interferes with displays of films and lantern slides in the open.

Extension Lectures.

Four lectures were given at different centres in Krian South by the Malay Agricultural Assistant in charge of this area, three on "Poultry Husbandry" and one on "Padi—the Millers' Requirements". It is hoped to initiate a series of lectures throughout the District dealing with such subjects as rubber tapping and manufacture of sheet, copra manufacture, plant propagation and poultry husbandry.

Show for Tourist Ship.

An exhibit of local agricultural produce was put up in Malacca for the visit of the s.s. "Resolute" on March 9th. It was much appreciated by the visitors and numerous question were asked.

Poultry.

As a result of lectures and demonstrations given during tours of the Rural Lecture Caravan and at other times, some improvement in the housing of poultry in the villages is recorded from Central and Southern Perak and from Selangor. In the latter State, however, it is added that there is still much room for improvement in cleanliness and general sanitation.

A serious outbreak of disease believed to be a form of diarrhoea at Sabak in Kuala Selangor District destroyed half the local fowl population. Another outbreak at Tras in the Raub District of Pahang resulted in 113 deaths. The Government Veterinary Surgeon made investigations into the cause of this outbreak.

DEPARTMENTAL NOTES.

Obituary.

Iuche Mohamed Bazir bin Abdul Rahman.

We regret to record the death, at the age of 50, of Inche Mohamed Bazir bin Abdul Rahman, Malay Agricultural Subordinate, Grade II, which took place on 15th March 1935. This officer served in this Department for twenty-five years during which period he proved himself to be a tactful and efficient officer.

Visits of the Adviser on Agriculture.

The Adviser on Agriculture made an offical visit to Penang, Province Wellesley and Kedah between 11th and 15th March. In Penang and Province Wellesley he inspected the various agricultural undertakings of the Department of Agriculture, discussed departmental matters with the Agricultural Officer and conferred with the Resident Councillor, Penang. He left Province Wellesley for Kedah on the 12th and attended the opening of the State Padi Show at Alor Star on the 13th.

On 26th March the Adviser proceeded to Singapore where His Excellency the Governor granted him an interview. He interviewed the Hon'ble the Colonial Secretary, various officials and unofficials, inspected the Singapore Pineapple Station, and discussed numerous questions with the Agricultural Officer, Singapore.

On the 28th he went to Johore Bahru, returning to Singapore on the same day. In Johore he had an interview with the Hon'ble the General Adviser, Johore, met various other officials, and discussed numerous points with the State Agricultural Officer, Johore. He returned to Kuala Lumpur on the night of March 29th.

Agricultural Shows in March.

Officers of the Department have been closely concerned in the organisation of two agricultural shows held during the month, one at Alor Gajah, Malacca, and the other at Alor Star, Kedah. While in no way wishing to belittle the successful show in Malacca, attention is particularly directed to the Padi Show held at Alor Star for this was an event carried out on novel and progressive lines and may serve as a model for similar padi shows elsewhere. At Alor Star the padi exhibits were confined to samples drawn from crops obtained by the use of seed originally selected by the Department of Agriculture. The success of this show should lead to extended use of improved seed in Kedah. Shows of a similar nature will doubtless be organised in other parts of the country when and as selected seed becomes more widely known and more extensively planted.

Statistical.

MARKET PRICES.

March, 1935.

Rubber.—The rubber market suffered a severe set-back in March, the price for spot loose in Singapore falling to 17½ cents per lb. towards the end of the month. The market opened at 20¾ cents and closed at 18¾ cents per lb., the average for No. 1. X. Rubber Smoked Sheet being 19.49 cents per lb. as compared with 21.10 cents per lb. in February. The average price in London for the month was 5.76 pence per lb. and in New York 11.42 cents gold per lb. as compared with 6.30 pence and 12.79 cents gold in February.

The following table shews weekly prices paid at three centres during the month for small-holders' rubber.

Table I.

Weekly Prices Paid By Local Dealers for Small-Holders' Rubber, March, 1935.

(Dollars per Picul.)

Grades.	Kuala Pilah, Negri Sembilan.				Kuala Kangsar, Perak.			Batu Pahat, Johore.			
	7	14	21	28	6	13	20	6	13	20	27
Smoked sheet	23.88	23.30	21.00	23.91	23.65	22.87	21.00			19.20	
Unsmoked sheet	22.00	21.87	20.00		20.00	19.52	17.66	20.35	20.00		
Scrap	16.50							17.74			17.91

Transport by lorry Kuala Pilah to Seremban 15 cents per picul, to Malacca excluding duty, 25 cents per picul, by rail Seremban to Penang $1.24 per picul, Seremban to Singapore $8.00 per ton.

Transport from Batu Pahat to Singapore by lorry excluding duty, 90 cents per picul.

Transport from Kuala Kangsar to Prai by railway $6.20 per ton.

Transport from Kuala Kangsar to Singapore by railway $10.00 per ton (minimum consignment 5 tons).

At Kuala Pilah the standard deduction for moisture in unsmoked sheet is 5 per cent.

At Kuala Kangsar the standard deduction for moisture in unsmoked sheet is 10 per cent.

No purchases at Kuala Kangsar on 27th March, 1935.

Palm Oil.—Prices for Malayan palm oil and kernels rose still further during the first half of March, but fell away rapidly at the close as shewn by the following table of quotations.

Table II.

Prices of Palm Oil and Palm Kernels.

Date 1935.	Palm Oil in Bulk, c i.f landed weight Liverpool/ Halifax.	Palm Kernels, c.i.f. landed weight London/ Continent
	per ton	per ton
March 1	£ 23. 17. 6	£ 9. 5. 0
,, 8	24. 10. 0	9. 5. 0
,, 15	22. 0. 0	8. 0. 0
,, 22	21. 0. 0	8. 0. 0
,, 29	21. 0 0	8. 5. 0

Copra.—Prices in Singapore fell considerably during March but rallied somewhat at the close. Opening at a peak of $4.90 per picul, the sun-dried grade fell to $3.95 in the middle of the month and closed at $4.40, an average of $4.44 per picul. The mixed quality followed the same course and averaged $4.19 per picul. The February averages were $4.60 and $4.40 per picul respectively.

The price of copra cake fell considerably during the month, averaging $1.43 per picul as compared with $1.95 in February.

Rice.—The average wholesale prices of rice per picul in Singapore during February were as follows:—Siam No. 2 (ordinary) $3.37, Rangoon No. 1 $3.16, Saigon No. 1 $3.32, as compared with $3.11, $2.89 and $3.02 in January. Corresponding prices in February 1934 were:—$3.06, $2.50 and $2.60.

The average retail market prices in cents per gantang of No. 2 Siam rice in February were:—Singapore 23, Penang 20, Malacca 22, as compared with 22, 20 and 22 respectively in January.

Padi.—The Government Rice Mill, Bagan Serai, continued to pay $2 per picul for padi during March but towards the close dropped to $1.80 The privately owned mill similarly reduced its price to $1.55 per picul. Prices per gantang varied from 4½ to 11 cents in different parts of the country

Tea.—Malayan tea was again represented on the London market in February. Two consignments of Kedah tea were sold at average prices of 10¾d. and 10¼d. per lb. Boh Plantations tea was sold at an average of 11d.

per lb. Average London prices per lb. paid during February for tea consignments from other countries were as follows:—Ceylon 1s. 2.16d., Java 9.49d., Indian Northern 11.94d., Indian Southern 11.65d., Sumatra 8.60d.

The latest available London average prices (7th March, 1935) are 1s. 3.25d., 9.62d., 11.59d., 1s. 0.2d. and 8.72d. respectively. Boh Plantations teas were sold at 11d. per lb.

The following are the latest Colombo average prices available and are quoted from the *Weekly Tea Market Report*, 26th March 1935, of the Colombo Brokers' Association; prices are in rupee cents per lb.: High Grown Teas 91 cents, Medium Grown Teas 65 cents, Low Teas 56 cents.

Tuba Root (*Derris*).—The demand for good quality roots of Malayan origin was well maintained during March, and the price averaged $38 per picul for roots sold on a basis of ether extract, as compared with $34.50 in February. The price of non-Malayan roots sold on a similar basis of analysis was unchanged at $30 per picul; stocks have, however, accumulated during the month. Roots of good rotenone content continued to average $46 per picul.

Coffee.—Prices again fell during March. Sourabaya coffee opened at $17 to $18.50 per picul, improving slightly to $17.50 to $19 at the close. Palembang coffee averaged $12.25 per picul as compared with $12.94 in February.

Local prices for coffee were as low as $15 to $16 per picul in Johore and Kedah, but ranged to $35 according to quality.

Arecanuts.—There was a further fall in prices during March. Average prices per picul in Singapore were:—Splits $4.25 to $5.86, Sliced $7.20 to $8.80, Red Whole $5.65 to $6.85, the price in each range depending upon quality.

The average prices per picul quoted by the Singapore Chamber of Commerce were: Best $6.20, Medium $5.59, Mixed $4.31.

Gambier.—Prices in Singapore fell slightly during the month, Block averaging $5.05 per picul and No. 1 Cube $10.70 per picul as compared with $5.12 and $11.62 respectively in February.

Pineapples.—Prices weakened with poor demand for pineapples during the first half of March, but considerable business passed at the close, and the market strengthened. Average prices per case were:—Cubes $3.19, Sliced Flat $3.08, Sliced Tall $3.23, as compared with $3.45, $3.17 and $3.40 respectively in February.

Fresh fruit prices per 100 were:—Singapore, $2.50 and $1.75 for large and small sizes respectively; Johore, 1st quality $1.70 to $2.90; 2nd quality $1.50 to $2.30; 3rd quality 70 cents to $1.80; Selangor, 70 cents to $2 according to quality

Tapioca.—Singapore prices remained unchanged throughout the month at the February closing levels with the exception of Seed Pearl which fell 5 cents per picul. Average prices per picul were:—Flake Fair $4, Seed Pearl $5.42, Medium Pearl $6, as compared with $3.75, $5.47 and $6 respectively in February.

Sago.—Prices eased slightly in Singapore during March and averages for the month were as follows:—Pearl, Small Fair, $3.67 per picul, Flour, Sarawak Fair, $2.42 per picul, as compared with $3.77 and $2.41 respectively in February.

Mace.—Prices in Singapore fell towards the close of the month, Siouw averaging $105 per picul, and Amboina $61.20 per picul. February average prices were $95 and $66.25 respectively.

Nutmegs.—Prices showed some slight improvement at the close of March after weakening in the middle of the month. Average prices were:—110's $27.20 per picul and 80's $28.20 per picul, as compared with $27.50 and $28.50 respectively in February.

Pepper.—There was a certain amount of enquiry for Black pepper in Singapore, but the market for White continued a nominal one with quotations falling heavily. Singapore Black averaged $14, Singapore White $32.40 and Muntok White $33.40 per picul as compared with $18.25, $51.50 and $53.50 respectively in February.

Cloves.—The Singapore market continued a nominal one but quotations for Amboina were marked down from $45 to $38 per picul, averaging $40.80. Zanzibar remained unchanged at $35 per picul.

Tobacco.—There was considerable variation in local prices of tobacco in different parts of the country. In Perak 1st quality was $45 per picul, 2nd quality $35 and 3rd quality $15 to $20 and in Perak Central the price rose as high as $80 per picul. In other parts of the country the range was from $14 to $65, Java tobacco being quoted in Johore at $50 to $90 per picul.

The above prices are based on London and Singapore daily quotations for rubber; on the Singapore Chamber of Commerce Weekly Reports for the month and on other local sources of information. Palm oil reports are kindly supplied by Messrs. Guthrie & Co. Ltd., Kuala Lumpur; the Singapore prices for coffee and arecanuts by the Lianqui Trading Company of Singapore, and tuba prices by Messrs. Mackay & Co., Singapore.

1 picul = 133⅓ lbs. The Dollar is fixed at two shillings and four pence.

Note.—The Department of Agriculture will be pleased to assist planters in finding a market for agricultural produce. Similar assistance is also offered by the Malayan Information Agency, 57, Charing Cross, London, S.W.1.

GENERAL RICE SUMMARY.*

February 1935.

Malaya.—February imports of foreign rice into Malaya were 43,529 tons and exports 13,747 tons. Net imports for January and February totalled 71,493 tons, an increase of 6.9 per cent. when compared with the previous year†.

Of the imports during February, 49 per cent. were consigned to Singapore, 22 per cent. to Penang, 3 per cent. to Malacca, 23 per cent. to the Federated Malay States and 3 per cent. to the Unfederated Malay States. Of the total 63 per cent. came from Siam, 33 per cent. from Burma, 3 per cent. from French Indo-China and 1 per cent. from other countries.

Of the exports during February, 71 per cent. were consigned to the Netherlands Indies and 29 per cent. to other countries. The various kinds of rice exported were :—Siam 9,180 tons (66.8 per cent.) Burma 3,481 tons (25.3 per cent.), French Indo-China 491 tons (3.6 per cent.), parboiled 507 tons (3.7 per cent.), local production 88 tons (0.6 per cent.).

India and Burma.—Foreign exports in January were 94,000 tons, an increase of 22.0 per cent., as compared with 77,000 tons in 1934. Of these exports, 2.1 per cent. were to the United Kingdom, 1.1 per cent. to the Continent, 44.7 per cent. to Ceylon, 36.2 per cent. to the Straits Settlements and the Far East, and 15.9 per cent. to other countries. The 1934 percentages were 2.6, 5.2, 53.2, 20.8, and 18.2 respectively.

According to the *Indian Trade Journal* 28th February 1935, the total area under rice for the season 1934-35 is reported as 81,026,000 acres as compared with 83,102,000 acres in the previous season. The total yield is estimated at 29,830,000 tons as compared with 30,863,000 tons in 1933-34.

Burma's total exports of rice and bran (*Bangkok Times* 5th March 1935) for January 1935 were 315,135 metric tons as compared with 229,626 metric tons in 1934, an increase of 37.2 per cent.

Siam.—Exports of rice from Bangkok during January and February were 164,531 tons and 162,483 tons respectively, a total for the two months of 327,014 tons as compared with 260,175 tons in 1934. The 1935 figures are provisional.

Japan.—No further information is available since the January Summary.

French Indo-China. Entries of padi into Cholon during the period 1st January to 15th March, 1935, totalled 466,436 metric tons, an increase of 83.5 per cent. as compared with 1934. Exports of rice for the same period were 454,669 metric tons, an increase of 63.8 per cent.

The Netherlands Indies.—The area under padi in Java and Madura (*Economic Bulletin* 1st February 1935) for the period January to November 1934, amounted to 8,995,740 acres as compared with 9,139,000 acres in 1933.

* Abridged from the Rice Summary for February 1935, compiled by the Department of Statistics, Straits Settlements and Federated Malay States.

† It is to be understood throughout the summary that all comparisons and percentage increases or decreases are in relation to the corresponding period of 1934.

According to the same authority gross imports of rice into Java and Madura during 1934 totalled 61,500 metric tons as compared with 105,900 metric tons in 1933, a decrease of 41.9 per cent.

Ceylon. Imports during January and February were 84,912 tons, an increase of 2.7 per cent. as compared with the previous year. Of this year's imports 13.5 per cent. were from British India, 71.2 per cent. from Burma, 1.6 per cent. from the Straits Settlements and 13.7 per cent. from other countries. The 1934 relative percentages were 14.7, 70.3, 0, and 15 per cent. respectively.

Europe and America.—Shipments to Europe from the East for the period 1st January to 14th February 1935 were 78,526 tons, an increase of 36.8 per cent. as compared with 1934.

Of the 1935 shipments 7 per cent. were from Burma, 80.8 per cent. from Saigon, 11.3 per cent. from Siam and 0.9 per cent. from Bengal. The 1934 percentages were 10.9, 74.1, 12.1 and 2.9 respectively.

Shipments from the East to the Levant for the period 1st to 26th January 1935, were 3,900 tons as compared with 123 tons in 1934.

Shipments to the West Indies and America for the same period in 1935 were 2,450 tons as compared with 49 tons in 1934.

Correction.

General Rice Summary, January 1935.

First Forecast of the Rice Crop of Siam: "total production at 64,800,000 tons of rice and rice products" should read "64,800,000 piculs or 3,857,143 tons".

MALAYAN AGRICULTURAL EXPORTS, FEBRUARY, 1935.

PRODUCT.	Net Export in Tons.				
	Year 1934.	Jan.-Feb. 1934.	Jan.-Feb. 1935.	February 1934.	February 1935.
Arecanuts ...	18,882	7,444	3,624	3,832	856
Coconuts, fresh † ...	100,826†	14,544†	14,745†	8,029†	7,593†
Coconut oil ...	25,485	3,867	4,565	2,104	2,061
Copra ...	95,618	17,054	23,090	7,791	11,904
Gambier, all kinds ...	2,170	328	422	155	182
Oil cakes ...	11,273	2,397	1,775	1,214	852
Palm kernels ...	3,196	346	560	186	215
Palm oil ...	15,852	1,664	3,176	1,367	1,911
Pineapples canned ...	66,633	8,832	9,624	4,165	5,156
Rubber ¶ ...	479,371¶	83,605¶	67,130¶	41,832¶	30,109¶
Sago,—flour ...	10,503	1,088	2,706	437*	799
,, —pearl ...	6,177	475	789	220	286
,, —raw ...	7,079*	768*	1,140*	304*	444*
Tapioca,—flake ...	5,761	1,179	396	530	159
,, —flour ...	1,842*	213*	115*	29*	148
,, —pearl ...	15,770	2,333	2,011	1,234	1,052
Tuba root ...	481	106½	136½	62	95½

† hundreds in number. * net imports. ¶ production.

MALAYAN PRODUCTION IN TONS OF PALM OIL AND KERNELS

(As declared by Estates)

Month	Palm Oil		Palm Kernels	
	F.M.S.	U.M.S.	F.M.S.	U.M.S.
January, 1935 ...	1,062.3	339.3	174.0	49.6
February 1935 ...	977.4	220.9	161.7	38.5
Total—January and February	2,039.7	560.2	335.7	88.1
January, 1934 ...	926.0	166.3	152.9	30.8
February 1934 ...	849.7	129.9	131.6	27.3
Total—January and February	1,775.7	296.2	284.5	58.1
Total for year 1934 ...	12,963	4,510	2,013	795

MALAYA RUBBER STATISTICS

ACREAGES OF TAPPABLE RUBBER NOT TAPPED ON ESTATES OF 100 ACRES AND OVER, FOR THE MONTH ENDING 28TH FEBRUARY, 1935.

STATE OR TERRITORY	Acreage of Tappable Rubber end 1933 (*d*)	ESTATES WHICH HAVE ENTIRELY CEASED TAPPING		ESTATES WHICH HAVE PARTLY CEASED TAPPING (*a*)		AREA OF TAPPABLE RUBBER NEVER BEEN TAPPED		Total (3) + (5)	Percentage of (9) to (2)
		Acreage	Percentage of (3) to (2)	Acreage	Percentage of (5) to (2)	Acreage	Percentage of (7) to (2)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
STRAITS SETTLEMENTS :—									
Province Wellesley	44,285	505	1.1	8,432	19.0	644	1.5	8,937	20.2
Malacca	121,152	135	0.1	16,850	13.9	2,511	2.1	16,985	14.0
Penang Island	1,366	126	9.2	434	31.8	144	10.5	560	41.0
Singapore Island	28,842	1,996	6.9	6,801	23.6	734	2.5	8,797	30.5
Total S.S. ...	195,645	2,762	1.4	32,517	16.6	4,033	2.1	35,279	18.0
FEDERATED MALAY STATES :—									
Perak	260,595	2,621	1.0	40,880	15.7	14,505	5.6	43,501	16.7
Selangor	310,003	4,933	1.6	44,992	14.5	12,891	4.2	49,925	16.1
Negri Sembilan	233,592	5,865	2.5	35,449	15.2	14,284	6.1	41,314	17.7
Pahang	46,712	4,357	9.3	16,196	34.7	11,101	23.8	20,553	44.0
Total F.M.S. ...	850,902	17,776	2.1	137,517	16.2	52,781	6.2	155,293	18.3
UNFEDERATED MALAY STATES :—									
Johore	365,400	8,694	2.4	27,087	7.4	21,616	5.9	35,781	9.8
Kedah (*b*)	126,588	1,798	1.4	28,886	22.8	19,591	15.5	30,684	24.2
Kelantan	25,793	5,084	19.7	622	2.4	5,084	19.7	5,706	22.1
Trengganu (*b*)	4,543	Nil	Nil	98	2.2	98	2.2	98	2.2
Perlis (*c*)	1,181	Nil	Nil	543	46.0	Nil	Nil	543	46.0
Brunei	(*d*) 4,991	Nil	Nil	1,478	29.6	874	17.5	1,478	29.6
Total U.M.S. ...	528,496	15,576	2.9	58,714	11.1	47,263	8.9	74,290	14.0
TOTAL MALAYA ...	1,575,043	36,144	2.3	228,748	14.5	104,077	6.6	264,862	16.8

Notes :—(*a*) Area out of tapping on Estates which have partly ceased tapping refers to areas definitely being rested and excludes areas on any tapping round.
(*b*) Registered Companies only.
(*c*) Rendered quarterly.
(*d*) Figures are as reported by estate managers.

MALAYA RUBBER STATISTICS — TABLE I

STOCKS, PRODUCTION, IMPORTS AND EXPORTS OF RUBBER, INCLUDING LATEX, CONCENTRATED LATEX AND REVERTEX, FOR THE MONTH OF FEBRUARY, 1935 IN DRY TONS.

State or Territory 1	Stocks at beginning of month 1			Production by Estates of 100 acres and over		Production by Estates of less than 100 acres estimated 2		Imports				Exports including re-exports				Stocks at end of month		
				during the month	January 1935	during the month	January 1935	during the month		January 1935		during the month		January 1935				
	Ports	Dealers	Estates of 100 acres and over					Foreign	From Malay States & Labuan	Foreign	From Malay States & Labuan	Foreign	Local	Foreign	Local	Ports	Dealers	Estates of 100 acres and over
MALAY STATES :—	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Federated Malay States ...	...	12,812	10,040	10,001	23,287	6,103	12,442	Nil	Nil	Nil	Nil	14,018	3,033	31,953	6,245		12,289	9,607
Johore ...	...	2,822	3,123	3,197	7,400	3,485	7,933	Nil	16	Nil	59	2,283	4,765	4,520	9,552	...	2,445	3,150
Kedah ...	...	366	2,060	2,182	5,262	929	2,131	Nil	Nil	Nil	Nil	1,538	1,877	3,328	3,711	...	254	1,868
Perlis ...		18	21	10	33	17	27	Nil	Nil	Nil	Nil	Nil	26	Nil	59	...	19	21
Kelantan ...	...	294	180	343	663	438	868	Nil	Nil	Nil	Nil	86	751	224	1,223	...	198	220
Trengganu ...	...	55	50	283	479	142	240	Nil	Nil	Nil	Nil	Nil	425	Nil	719	...	55	50
Brunei	...	21	26	51	106	59	130	Nil	Nil	Nil	Nil	Nil	106	Nil	211	...	19	32
Total Malay States	...	16,388	15,500	16,067	37,230	11,173	23,831	Nil	16	Nil	59	17,925	10,983	40,025	21,720	...	15,279	14,948
S. SETTLEMENTS :-																		
Malacca ...	...	3,443	1,090	1,142	2,734	761	1,295	Nil		Nil		3,013		6,775		...	3,208	1,150
Province Wellesley	...	1,695	500	425	1,000	194	364	Nil		Nil		6,584		13,564		...	1,802	473
Penang ...	3,070	12,862	12	13	31	43	65	2,464	11,719	4,773	23,188		Nil		Nil	2,372	13,126	16
Singapore ...	5,951	37,726	193	190	434	86	121	15,212		28,045		22,868		46,746		3,582	38,506	196
Labuan	...	41	Nil	Nil	Nil	15	25	166		534		Nil		Nil		...	37	Nil
Total Straits Settlements	9,021	55,767	1,795	1,770	4,199	1,099	1,870	17,842	11,719	33,352	23,188	32,465	Nil	67,085	Nil	5,954	56,679	1,835
TOTAL MALAYA	9,021	72,155	17,295	17,837	41,429	12,272	25,701	17,842	11,735	33,352	23,247	50,390	10,983	107,110	21,720	5,954	71,958	16,783

†Figures for the Dindings in columns 3 to 8 are included under F.M.S. with effect from 1st January, 1935.

TABLE II
DEALERS' STOCKS, IN DRY TONS 3

Class of Rubber	Federated Malay States	S'pore	Penang	Province We'sly D'dings M'cca.	Johore	Kedah
20	21	22	23	24	25	26
DRY RUBBER	11,216	34,191	11,615	4,780	1,850	148
WET RUBBER	1,073	4,315	1,511	286	595	106
TOTAL ...	12,289	38,506	13,126	5,066	2,445	254

TABLE III
FOREIGN EXPORTS

PORTS 27	For month 28	January 1935 29
Singapore ...	34,308	74,238
Penang ...	11,162	22,814
Port Swettenham.	4,667	9,371
Malacca ...	253	687
MALAYA ...	50,390	107,110

TABLE IV
DOMESTIC EXPORTS 4

AREA 30	For month 31	January 1934 32
Malay States ...	28,903	57,585
Straits Settlements	2,940	
MALAYA ...	31,843	57,585

Notes:—

1. Stocks on estates of less than 100 acres and stocks in transit on rail, road or local steamer are not ascertained.
2. The production of estates of less than 100 acres is estimated from the formula: Production + Imports + Stocks at beginning of month = Exports + Stocks at end of month. + Consumption, *i.e.*, Column [9] = Columns [15] + [16] + [19] + [20] + [21] + [22] − [4] − [5] − [6] − [7] − [11] − [12]. For the Straits Settlements the production of of estates of less thau 100 acres is represented by sales or exports as shown by cess paid.
3. Dealers' stocks in the Federated Malay States are reduced to dry weights by the following fixed ratios: unsmoked sheet, 15% wet sheet, 25% scrap, lump, etc., 40%; stocks elsewhere are in dry weights as reported by the dealers themselves.
4. Column (31) and (32) represent exports of rubber subject to regulation which, for Singapore and Penang Islands are represented by sales or exports as shown by cess paid.
5. The above, with certain omissions, is the Report published by the Registrar-General of Statistics, S.S. and F.M.S., at Singapore on 25 March, 1935.

METEOROLOGICAL SUMMARY, MALAYA, FEBRUARY, 1935.

Locality.	Air Temperature in degrees Fahrenheit							Earth Temperature		Rainfall								Bright Sunshine.		
	Means of			Absolute Extremes						Total.		Most in a day.	Number of days.					Total.	Daily Mean.	Per cent.
	A. Max.	B. Min.	Mean of A and B.	Highest Max.	Lowest Min.	Lowest Max.	Highest Min.	At 1 foot	At 4 feet			Amt.	Precipitation .01 in or more	Precipitation .04 in or more	Thunder-storm	Fog morning obs.	Gale force 8 or more			
	°F	°F	°F	°F	°F	°F	°F	°F	°F	in.	mm.	in.						Hrs.	Hrs.	
Railway Hill, Kuala Lumpur, Selangor ...	92.4	71.7	82.1	95	68	88	74	84.5	84.6	11.85	301.0	2.24	19	19	3	6	1	219.85	7.85	65
Bukit Jeram, Selangor ...	89.2	72.3	80.7	91	71	86	74	85.9	85.6	4.40	111.8	1.58	15	10	4	1	1	246.55	8.81	73
Sitiawan, Perak ...	90.4	72.5	81.5	93	70	88	75	84.4	84.8	2.70	68.6	0.87	11	9	2	1		243.85	8.71	73
Temerloh, Pahang ...	88.3	70.8	79.5	92	67	84	78	83.6	84.5	2.83	71.9	0.62	12	10		8		211.05	7.54	63
Kuala Lipis, Pahang ...	87.9	70.0	78.9	91	67	85	73	82.3	83.0	2.15	54.6	0.53	10	9		17		196.35	7.01	58
Kuala Pahang, Pahang ...	84.6	74.5	79.5	86	70	83	79	84.5	84.3	2.44	62.0	0.87	11	9				245.45	8.77	73
Kallang Aerodrome, S'pore ...	87.2	73.7	80.5	91	71	75	76	81.8	82.8	5.31	134.9	1.73	11	9				204.70	7.31	60
Butterworth, Province Wellesley ...	89.4	71.7	80.5	94	69	86	75	85.0	85.0	2.46	62.5	0.70	9	8				277.60	9.91	83
Bayan Lepas Aerodrome, Penang ...	89.5	72.0	80.7	94	68	86	75	84.0	84.4	1.74	44.2	0.96	6	6	1			274.05	9.79	82
Bukit China, Malacca ...	88.3	72.9	80.6	94	72	81	75	84.0	84.3	4.74	120.4	1.64	12	12	1			213.55	7.63	63
Kluang, Johore ...	88.4	70.4	79.4	92	67	80	72	80.6	81.2	6.18	157.0	2.60	12	11		4		208.45	7.44	61
Bukit Lalang, Mersing, Johore	83.1	70.6	76.9	86	65	80	75	79.3	79.5	9.51	241.5	2.88	11	10		2		236.70	8.45	70
Alor Star, Kedah ...	92.1	68.7	80.4	94	66	89	73	83.0	83.9	1.61	40.9	0.75	5	5	3	1	1	263.75	9.42	79
Kota Bahru, Kelantan ...	85.8	69.5	77.7	88	64	83	78	80.4	82.1	3.87	98.3	1.95	7	5		4		236.00	8.43	71
Kuala Trengganu, Trengganu	85.0	69.8	77.4	87	66	81	75	80.9	82.1	5.64	143.3	2.28	14	12		2		244.65	8.74	73
HILL STATIONS.																				
Fraser's Hill, Pahang 4268 ft.	71.4	60.7	66.1	74	59	65	63	71.3	71.4	11.84	300.7	2.47	16	14		21		160.55	5.73	48
Cameron Highlands, Tanah Rata, Pahang 4750 ft. ...	73.6	52.6	63.1	77	44	69	62	68.9	68.5	3.48	88.4	1.24	13	9	1			189.50	6.77	56
Cameron Highlands, Rhododendron Hill, Pahang 5120 ft. ...	73.4	58.1	65.7	77	56	67	60			3.62	92.0	1.26	11	9				206.70	7.38	61

Compiled from Returns supplied by the Meteorological Branch, Malaya.